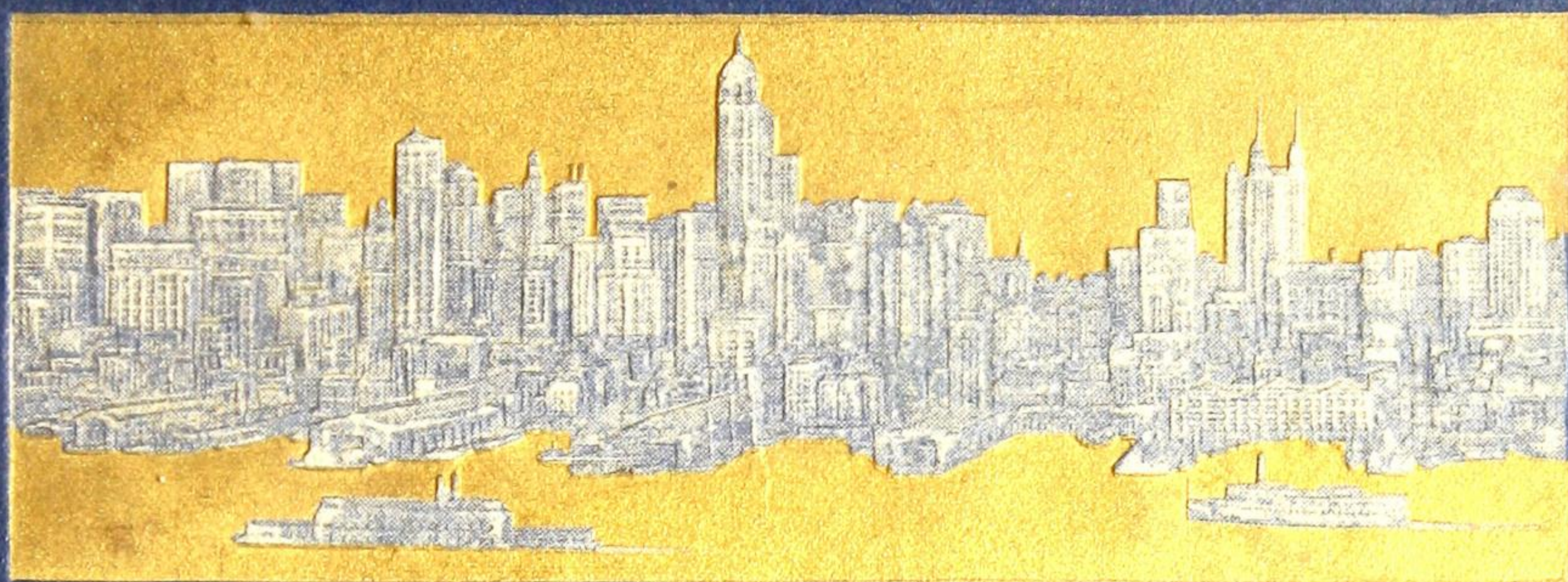




**New York City Tests
Triangle Mesh
Concrete
Reinforcement**

American Steel & Wire Company.





Sales Offices

CHICAGO 115 Adams Street
NEW YORK 30 Church Street
WORCESTER 94 Grove Street
BOSTON 120 Franklin Street
PITTSBURG Frick Building
CINCINNATI Union Trust Building
CLEVELAND Western Reserve Building
DETROIT Ford Building
ST. LOUIS Third National Bank Building
MONTREAL Bank of Ottawa Building
ST. PAUL-MINNEAPOLIS . Pioneer Press Building, St. Paul
DENVER, COLO. First National Bank Building
SALT LAKE CITY, UTAH . . 736 South 3d West Street
SAN FRANCISCO, CAL. . . . 16th and Folsom Streets
PORTLAND, ORE. Ninth and Irving Streets
SEATTLE, WASH. 1115 First Avenue South
LOS ANGELES, CAL. Jackson and Central Avenues
LONDON, ENG. 36 New Broad Street

•

EXPORT REPRESENTATIVES

United States Steel Products Company
30 Church Street, New York, N. Y.

Set A
P. 4

New York City Tests Triangle Mesh Concrete Reinforcement



**Being Reports of Various
Tests made for the City
of New York**



American Steel & Wire Company

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CCA

Am

New York City Tests

THE use of cinder concrete as a material for fireproof floor construction has greatly increased within the last few years. This increase is largely due to the results of fire and load tests made on this form of construction, which show, beyond question, that not only has cinder concrete the requisite strength to carry the loads ordinarily found in building construction, but its ability to withstand continued high temperatures without cracking or disintegrating makes it an admirable material for fireproof construction. The behavior of cinder concrete in actual fires, such as the Alwyn Court apartment house fire of March 5th, is further proof of its efficiency.

It should be noted in this connection that all grades of cinders are not suitable for use as the aggregate for concrete. Only clean, hard-burned cinders from Anthracite coal, free from soft material and pieces of unburned coal, should be used. Concrete made of such aggregate is hard, strong and refractory, affording ample protection, when properly mixed, against fire and the corrosion of reinforcing and structural steel, but the use of an inferior aggregate, such as cinders from soft coal, cannot be relied upon to give a concrete of sufficient strength to carry the required loads.

Before any new type of fireproof floor construction can be approved for use in New York City, it must undergo and satisfactorily withstand the fire test as prescribed by Section 106 of the Building Code.

"Any of said materials may be used in combination with wire cloth, expanded metal, wire strands, or wrought iron or steel bars; but in any such construction, and as a precedent condition to the same being used, tests shall be made as herein provided by the manufacturer thereof under the direction and to the satisfaction of the Board of Buildings, and evidence of the same shall be kept on file in the Department of Buildings, showing the nature of the test and the result of the test. Such tests shall be made by constructing within inclosure walls a platform consisting of four rolled steel beams, ten inches deep, weighing each twenty-five pounds per lineal foot, and placed four feet between the centers, and connected by transverse tie rods, and with a clear span of fourteen feet for the two interior beams, and with the two outer beams supported on the side walls throughout their length, and with both a filling

between the said beams and a fireproof protection of the exposed parts of the beams of the system to be tested, constructed as in actual practice, with the quality of material ordinarily used in that system and the ceiling plastered below, as in a finished job, such filling between the two interior beams being loaded with a distributed load of one hundred and fifty pounds per square foot of its area and all carried by such filling, and subjecting the platform so constructed to the continuous heat of a wood fire below, averaging not less than seventeen hundred degrees Fahrenheit for not less than four hours, during which time the platform shall have remained in such condition that no flame will have passed through the platform or any part of the same, and that no part of the load shall have fallen through and that the beams shall have been protected from the heat to the extent that after applying to the under side of the platform at the end of the heat test a stream of water directed against the bottom of the platform and discharged through a one and one-eighth inch nozzle under sixty pounds pressure for five minutes, and after flooding the top of the platform with water under low pressure and then again applying the stream of water through the nozzle under the sixty pounds pressure to the bottom of the platform for five minutes, and after a total load of six hundred pounds per square foot uniformly distributed over the middle bay shall have been applied and removed, after the platform shall have cooled, the maximum deflection of the interior beams shall not exceed two and one-half inches. The Board of Buildings may from time to time prescribe additional or different tests than the foregoing for systems of filling between iron or steel floor beams, and the protection of the exposed parts of the beams. Any system failing to meet the requirements of the test of heat, water and weight, as herein prescribed, shall be prohibited from use in any building hereafter erected. Duly authenticated records of the tests heretofore made of any system of fireproof floor filling and protection of the exposed parts of the beams may be presented to the Board of Buildings, and if the same be satisfactory to said board, it shall be accepted as conclusive. No filling of any kind which may be injured by frost shall be placed between said floor beams during freezing weather, and if the same is so placed during any winter month, it shall be temporarily covered with suitable material for protection from being frozen. On top of any arch, lintel or other device which does not extend to and form a horizontal line with the top of the said floor beams, cinder concrete or other suitable fireproof material shall be placed to solidly fill up the space to a level with the top of the said floor beams, and shall be carried to the under side of the wood floor boards in case such be used. Temporary centering, when used in placing fireproof systems between floor beams, shall not be removed within twenty-four hours or until such time as the mortar or material has set. All fireproof floor systems shall be of sufficient strength to safely carry the load to be imposed thereon without straining the material in any case beyond its safe working load. The bottom flanges of all wrought iron or rolled steel floor and flat roof beams, and all exposed portions of such beams below the abutments of the floor arches, shall be entirely incased with hard-burnt clay, porous terra-cotta or other fireproof material allowed to be used for the filling between the beams under the provisions of this section, such incasing material to be properly secured to the beams."

Any system of fireproof floor construction, having successfully passed the fire test, will be approved by the Bureaus of

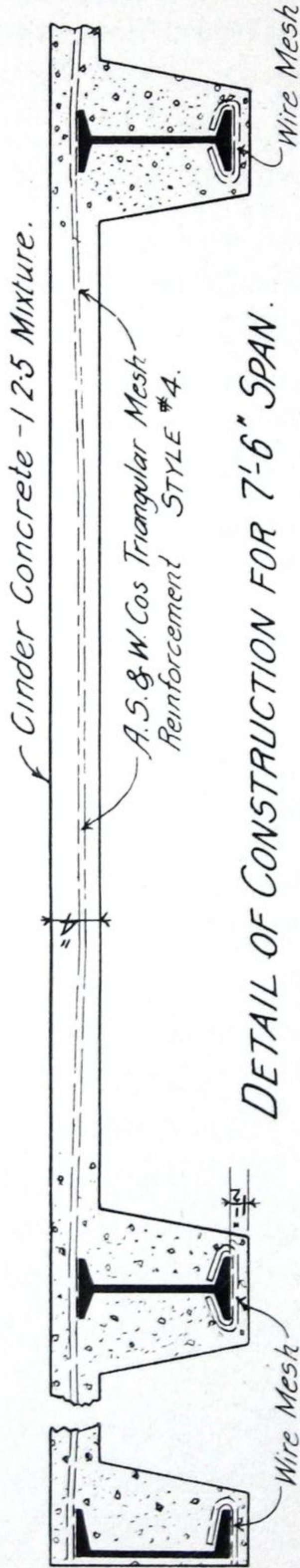
Buildings for floor slabs of the same general type as that tested, but different spans, thickness of slab and size of reinforcing material must have load tests made on each particular system for which approval is desired. Under Section 137 of the Building Code, cinder concrete floor construction is classed as masonry, and therefore a factor of safety of ten is required. The safe load, therefore, for which a slab is approved is taken as one-tenth of its breaking load.

For the purpose of obtaining official approval for Triangle Mesh Reinforcement as a reinforcing material for fireproof floor slabs of cinder concrete construction, a series of tests were made before representatives of the Bureaus of Buildings of the five Boroughs of New York City. Systems B and D were subjected to and successfully passed the fire test prescribed by the Building Code, while approval for systems A, C and H was obtained after the required load test had been made.

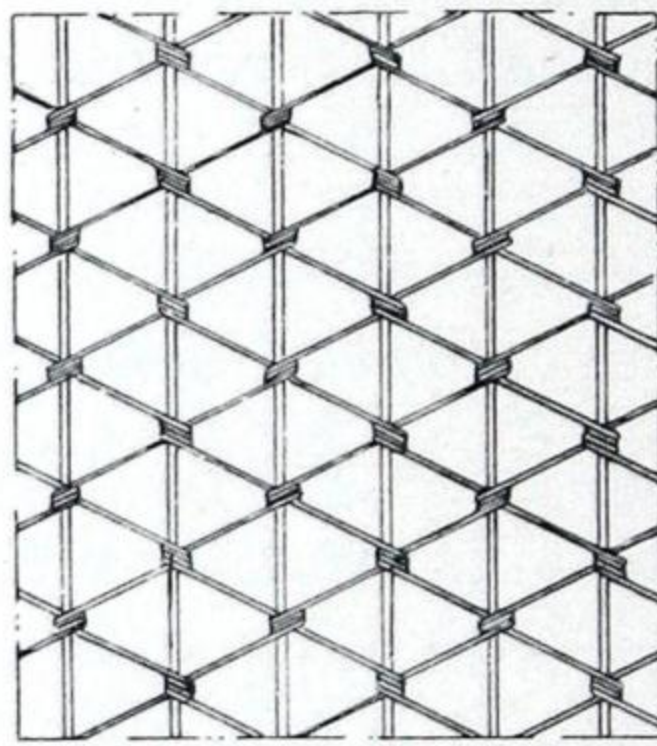
The tests on systems A, B, C, D and H were made under the supervision of disinterested engineers not connected with the American Steel and Wire Company. The fire tests on systems B and C were made at the Columbia University Testing Station under the supervision of Professor Ira H. Woolson, and the loading tests on systems A, C and H were made in the yard of the Charles A. Lefferts Iron Foundry, Borough of Brooklyn, under the supervision of Robert W. Boyd, Consulting Engineer. The reports of Professor Woolson and Mr. Boyd on the several tests as herein given were filed with the several Bureaus of Buildings, and the letters of approval herein reproduced were based upon these reports and the reports of the Bureaus' own inspectors, who were present at each test.

The reports, together with sketches of the several systems, photographs of tests and letters of approval, follow.

TRIANGLE MESH SYSTEM A.



DETAIL OF CONSTRUCTION FOR 7'-6" SPAN.



Style #4 —
Longitudinal members #6 gauge wire.
4" o.c., sectional area per ft. of width.
.087 sq. inches. Cross wires #14 gauge
4" mesh. Total cross sectional area
per ft. of width .102 sq. inches.

Note.

This system was tested July 15th 1910
for the Boroughs of Buildings of the
Five Boroughs of Greater New York and
approved July 27th 1910 for live loads up
to and including 90# per sq. ft. when
constructed as tested.

FIREPROOF FLOOR OF CONCRETE
REINFORCED WITH TRIANGULAR MESH REINFORCEMENT
MADE BY

AMERICAN STEEL & WIRE COMPANY
NEW YORK CHICAGO

Aug. 8th 1910.

System A

Report of Load Test on 4-Inch Cinder Concrete Slab, 7-Foot 6-Inch Span, Reinforced with American Steel and Wire Company's Triangle Mesh Reinforcement, Style No. 4

THE load test herein described was made in the yard of the Charles A. Leffert's Iron Foundry, corner of Second Avenue and 11th Street, Borough of Brooklyn, on July 15, 1910.

The slab tested was constructed of cinder concrete mixed in the proportions of one part Portland cement, two parts sand and five parts cinders. The slab was 4 inches in thickness and had a span of 7 feet 6 inches center to center of supporting beams. The reinforcement consisted of style No. 4, American Steel and Wire Company's Triangular Mesh Reinforcement. The cement was Alpha Portland. The sand was yellow Cow Bay, fairly coarse. The cinders were from a local yard. The construction is generally indicated on the blueprint herewith attached.

The installation of the test slab took place on May 31st, and was witnessed by representatives of the Bureaus of Buildings of the Boroughs of Manhattan, Bronx, Brooklyn and Richmond.

On July 15th the slab was loaded to destruction. Pig iron was the material used, and its weight was determined by measuring the cubic contents of the pile and assuming the weight per cubic foot to be 320 pounds. Deflections were read by stretching lines across from supporting beam to supporting beam at each side of the slab and reading the deflections on scales secured to the edge of the slab at the center. The loading was begun about 10.15 a. m. When about 470 pounds per square foot had been applied the slab showed a deflection of one-half inch. When 650 pounds per square foot had been applied the deflection was three-quarter inch. Beyond this point the deflections increased very rapidly, so that immediately before failure the slab showed a deflection of approximately 3 inches. When a load of 29,097 pounds or about 930 pounds per square foot had been applied, the slab sank under the load until the arching action of the pig iron held it. The sinking of the slab was preceded by sharp reports, probably caused by the parting of the reinforcing wires. Upon removing a portion of the load near the haunches relieving the arching action of the pig iron, the slab failed completely. Failure occurred by the giving way of the reinforcement at the center of the slab.

The loading of the slab was witnessed by A. Schwartz, Bureau of Buildings, Borough of Manhattan; Thomas Heatley, Bureau of Buildings, Borough of Bronx; H. B. Reynolds, Bureau of Buildings, Borough of Brooklyn; Harry Brown, Bureau of Buildings, Borough of Richmond; also Robert W. Boyd, Consulting Engineer, 105 West 40th Street, New York, under whose supervision the test was made.

(Signed) ROBERT W. BOYD

Dated July 16, 1910.

THE load test on this type of floor construction was made on June 18, 1910, and since then the inquiries and reports indicate that it will be quite generally used where comparatively long spans and ordinary loads are indicated.

Triangle Mesh, Style No. 4, is made up of one No. 6 wire in each longitudinal, spaced and tied 4 inches apart with a No. 14 gauge diagonal wire on 4-inch centers.

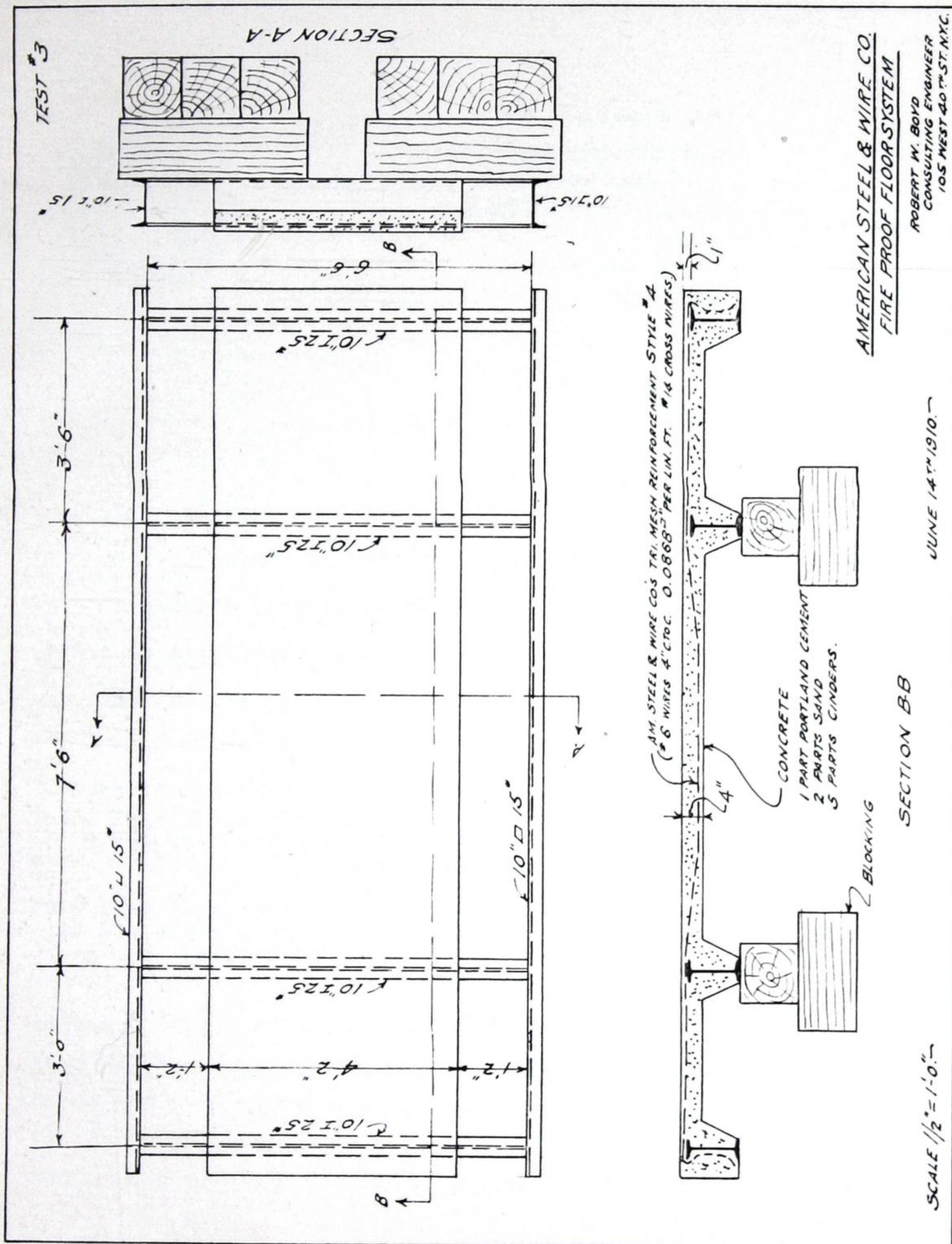
The approval for a 4-inch slab of cinder (1-2-5) concrete on 7-foot 6-inch spans reinforced with this fabric for all loads up to and including 90 pounds per square foot makes this System A the most economical as well as the most efficient fireproofing for *dwelling house, apartment house, hotel or lodging house*, where the minimum live load is limited to 60 pounds.

For all *office building* floors (excepting the first floor), where the live load is limited to 75 pounds.

For *school houses or places of instruction*, and for *stable, carriage house, etc.*, where the live load is limited to 75 pounds.

For *halls or places of public assembly*, where the minimum live load is limited to 90 pounds.

See Section 130, New York Building Code, "Floor Loads."



THE BUREAU OF BUILDINGS

FOR THE BOROUGH OF MANHATTAN

220 FOURTH AVENUE A.S.--LC
S.W. CORNER 18TH ST.RUDOLPH P. MILLER,
SUPERINTENDENT

New York City, July 27, 1910.

Mr. Robert W Boyd,

105 West 40th Street, City.

Dear Sir:

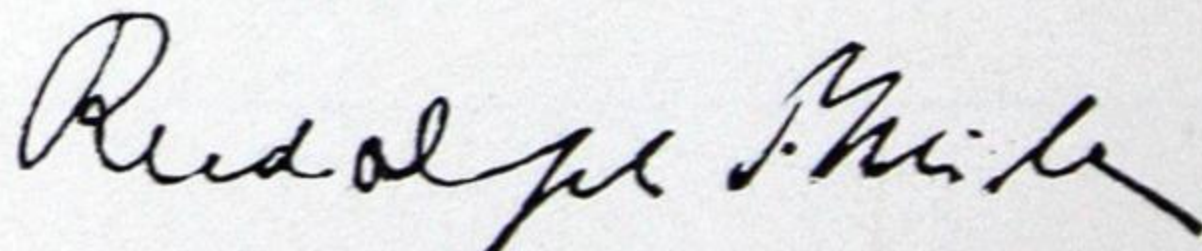
As a result of the loading tests made June 18, July 1 and July 7, 1910, at the yards of the Chas. A. Lefferts Iron Foundry, corner Second Avenue and Eleventh Street, Brooklyn, The American Steel and Wire Company's form of reinforced concrete floor construction is hereby approved for general use in the Borough of Manhattan as a fireproof construction, viz:

Span 7' 6", floor slab 4" thick of cinder concrete, 1 part Portland cement, 2 parts sand and 5 parts cinders, style #4 triangular mesh reinforcement, #6 wires 4" on centres, for a working load of 95 lbs. per square foot.

Span 6' 0", floor slab 4" thick, of cinder concrete, 1 part Portland cement, 2 parts sand and 5 parts cinders, style #24 triangular mesh reinforcement, #4 wires 4" on centres, for a working load of 400 lbs. per square foot.

In case the materials and workmanship in actual practice fall below the standard established in the test construction, this permit will be at once suspended or revoked.

Yours truly,



Superintendent.



MTD/JAH

BUREAU OF BUILDINGS
JOHN THATCHER, SUPERINTENDENT
WILLIAM A. COAKLEY, ASSISTANT SUPERINTENDENT

The City of New York
Office of the
President of the Borough of Brooklyn

Borough Hall
Brooklyn July 26th, 1910

American Steel & Wire Company,
105 West 40th Street,
Manhattan.
Mr. Robert W. Boyd,
Consulting Engineer.

Dear Sir:-

As a result of the load test made on 4" cinder concrete slab on July 15th, 1910, at Brooklyn, N.Y., your form of reinforced cinder concrete floor construction for spans not exceeding 7'6", reinforced with the American Steel & Wire Company's Triangular Mesh Reinforcement, style #4, (#6 wires 4" C.to C.) is approved for general use in the Borough of Brooklyn as fire-proof construction, for live loads up to 90 $\frac{1}{2}$ per sq.ft., provided that the construction is in all cases as tested.

In case the materials or workmanship in actual practice fall below the standard established in the test construction, this approval will be at once suspended or revoked.

This approval is granted on the further condition that you will be responsible for the proper installation of this construction, and that the system will be installed by you, or your accepted representative.

You are requested to send samples of the triangular mesh reinforcement used in this construction to this office at your earliest convenience.

Yours truly,

John Thatcher
Superintendent of Buildings,
Borough of Brooklyn.

THE CITY OF NEW YORK.

Office of

BUREAU OF BUILDINGS.

C.N.P.

BOROUGH OF THE BRONX.

Municipal Building - THIRD AVE. & 177TH ST.

N.Y. November 17th, 1910.

Robert W. Boyd, Esq.,

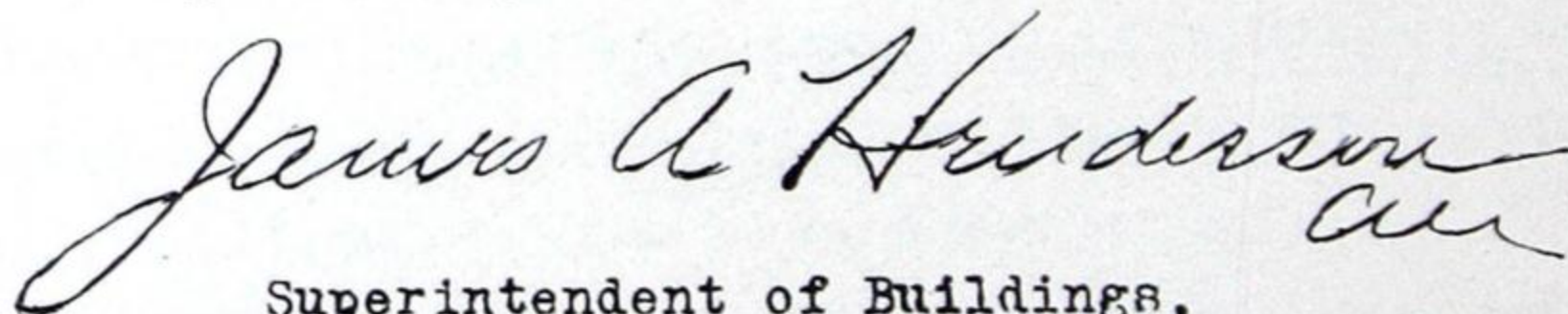
Consulting Engineer,

105 W. 40th Street, City.

Sir:-

The American Steel & Wire Co's. 4" cinder concrete slab on a 7'6" span reinforced with their triangular mesh reinforcement Style #4, has been approved for use in this Borough with a live load on same not to exceed 90 lbs. per square foot.

Respectfully,

Superintendent of Buildings,
Borough of the Bronx.

BUREAU OF BUILDINGS.

BOROUGH OF RICHMOND.
NEW BRIGHTON.

JOHN SEATON
SUPERINTENDENT

New York City, July 20th, 1910.

Robert W. Boyd, Esq.,

105 West 40th St., New York.

Dear Sir,-

I beg to advise you that your 4-inch cinder concrete slab on a 7' 6" span reinforced with the American Steel & Wire Co's triangular mesh reinforcement is approved for use in this Borough for live loads up to and including 90 pounds per square foot.

Yours very truly,

John Seaton
Superintendent of Buildings,
Borough of Richmond.

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System B

REPORT of a Fire, Load and Water Test, made at the Columbia Fire Testing Station, New York City, upon a Triangle Reinforced Concrete Floor System, constructed by The American Steel and Wire Company.

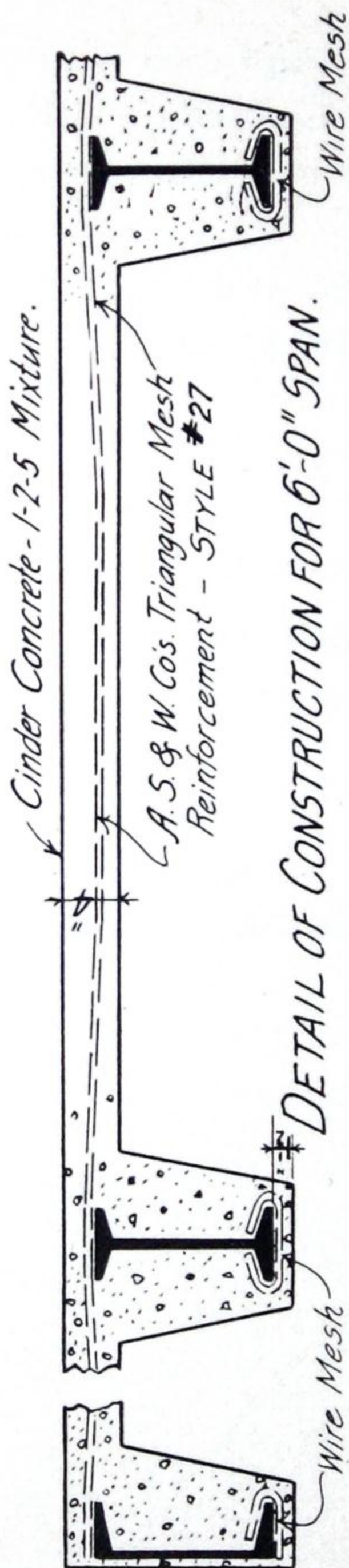
Tests made October 8, 1908

Weather Observations

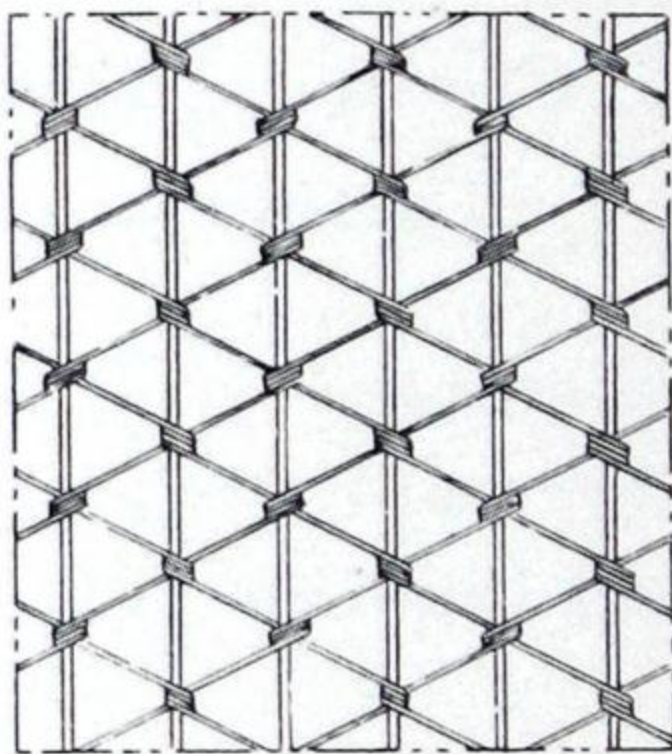
Day Cloudy—Light southwest winds
Temperature, 68°–75° F.

Test started	.	.	.	8.33 a. m.
Water applied	.	.	.	12.36 p. m.
Final loading	.	.	.	October 9, 1908

TRIANGLE MESH SYSTEM B.



DETAIL OF CONSTRUCTION FOR 6'-0" SPAN.



Style # 27 —
Longitudinal members #8 gauge wire
4" o.c., sectional area per ft. of width
.062 sq. inches. Cross wires #12½ gauge
4" mesh. Total cross sectional area
per ft. of width .085 sq. inches.

Note.

This system was tested October 8th 1908
for the Bureaus of Buildings of the
Five Boroughs of Greater New York and
approved Nov. 4th 1908 for live loads up
to and including 150* per sq. ft. when
constructed as tested

DETAIL OF REINFORCEMENT.

FIREPROOF FLOOR OF CONCRETE
REINFORCED WITH TRIANGULAR MESH REINFORCEMENT

MADE BY

AMERICAN STEEL & WIRE COMPANY

NEW YORK CHICAGO.

Aug. 9th 1910

Method of Construction

THE test was conducted in test house No. 2, which is a reinforced cinder concrete structure 14 by 20 feet on the inside. It is supplied with six suitable chimneys at the top and draft openings through the wall at the bottom. The fire grate is located 2 feet 6 inches above the ground level.

The floor construction under test formed the temporary roof of the test house, the under side or ceiling being 9 feet 6 inches above the grate.

Two types of floor arches were tested, one with a span of 8 feet and the other a span of 6 feet. The 8-foot span occupied the west side of the test chamber and was made of cinder concrete 5 inches thick, reinforced with the metal fabric of the American Steel and Wire Company, known as Style No. 26, the disposition of which is indicated in the attached blueprints and photographs Nos. 1 and 2.

The metal fabric consisted of one No. 6 steel wire, spaced and secured every 4 inches by No. 12½ diagonal steel cross wires.

The 6-foot span occupied the east side of the test chamber and was made of cinder concrete 4 inches thick, reinforced with American Steel and Wire Company's fabric, Style No. 27. The metal fabric in this span consisted of one strand of No. 8 gauge steel wire spaced and secured every 4 inches by a diagonal wire the same as used in the fabric of the 8-foot span.

The fabric in both spans was placed 1½ inches above the bottom surface of the concrete.

The 8-foot span was supported by 12-inch, 40-pound I beams, and the 6-foot span by 12-inch, 31½-pound I beams. The lower flanges of these beams were protected by 1½ inches of concrete at the sides and 2 inches at the bottom.

The concrete around the beams was held in place by American Steel and Wire Company's fabric, Style No. 7A, consisting of one strand of No. 12 wire spaced and tied 4 inches center to center by a No. 14 gauge diagonal, forming a mesh of 2 by 4 inches.

The concrete used was a 1-2-5 mixture of Portland cement silica sand and clean boiler cinders.

Full details of construction are given in the attached drawings and photographs.

Both spans were put in place on September 11, 1908, making the age of floor when tested four weeks.

Purpose of the Test

The purpose of the test was to determine the effect of a continuous fire below the floor for four hours at an average temperature of 1700 degrees F.,

the floor carrying at the same time a distributed load of 150 pounds per square foot; at the end of the four hours the under side of the floor (or ceiling), while still red hot, to be subjected to a $1\frac{1}{8}$ -inch stream of cold water at short range, through 100 feet of hose under 60 pounds pressure at the nozzle for five minutes, then the upper side of the floor (which forms the roof of the test building) to be flooded at low pressure; afterward the stream to be again applied at full pressure on the under side for five minutes longer.

Deflection of beams and floor to be measured continuously during the test. The load then to be removed, and after the floor becomes cold it shall be reloaded to 600 pounds per square foot and deflections noted.

Temperatures

The temperatures of the fire were obtained by three electric pyrometer couples suspended through the floor from above and hanging about 6 inches below the ceiling. The location of the couples is indicated on the temperature curve sheet.

Readings were made upon each couple every three minutes. The fuel used was dry cord wood, the frequency of firing being determined by the temperature of the test chamber. The "Log of Temperature Readings," together with plotted curve for the middle couple, is herewith attached.

Deflections

The deflections which occurred during the test were measured by a Y level, reading upon rods located upon the ends and middle of each beam, also upon the middle of the floor arches. The "Table of Deflections" gives full information regarding the variation in level of each point throughout the test, and the "Deflection Diagram" shows the relative position of the three members graphically at different times.

Water

The water was applied by firemen with an engine detailed from Engine House No. 138, Norman Avenue, Brooklyn, under the direction of Acting Chief Henry W. Rieckenberg.

In applying the water the stream was thrown back and forth over the whole ceiling as much as possible, and not allowed to strike continuously in one spot.

After five minutes' application the pressure was reduced to about 30 pounds and the top of the floor flooded, then the stream was applied to the ceiling again at full pressure for five minutes longer. Total time of application at full pressure was ten minutes.

Results of the Test

Forty minutes after start of the test several cracks appeared on the top of the floor, or roof, of the test house. These cracks ran around the building, on the line of the inside of the side walls of the building. The largest crack ($\frac{1}{4}$ inch) was across the end of the 8-foot span, and the next largest ($\frac{1}{8}$ inch) was along the wall side of the 8-foot span. All of these cracks opened somewhat as the test progressed, the largest being about $\frac{3}{8}$ inch wide, and the others varying down to $\frac{1}{8}$ inch.

Considerable water boiled up out of the concrete and ran down into the building through the drain holes. This continued for about two hours. This water tended to keep the thermo-couples cool where they passed through the floor, and this, together with the fact that the whole building was green concrete, served to hold down the temperature for the first half of the test, and necessitated maintaining a comparatively high temperature during the latter half of the test in order to secure a proper average.

During the fire the 8-foot span sustained a deflection at the middle of 2 inches, and while this was not considered excessive, still it was more than expected, and was probably due in part to the fact that when the floor was constructed it was found that the sheets of metal fabric supplied were not long enough to bend over and properly encase the outside girders or beams to secure a proper anchorage (see photograph No. 1). This left practically only 2 feet of concrete embedment on either side of this arch as an anchorage for the span throughout the whole test.

The cracks before mentioned and the consequent deflection were probably considerably augmented by this defective anchorage.

The under side of the floor was in perfect condition up to the application of water. This roughened and pitted the surface to a depth of $\frac{1}{2}$ to $\frac{3}{4}$ of an inch, being greatest directly in front of the doors where the action of the stream was more severe. However, no metal was exposed in either floor arch, and a hole about 3 inches square on the bottom of one girder constituted the only metal exposure observable in the floor. Horizontal cracks were noted along the sides of the girders supporting the 8-foot span, but the floor as a whole was in good condition, as will be seen by inspection of photograph No. 7.

The final loading to 600 pounds per square foot produced a total corrected deflection in the middle of each span of $1\frac{3}{16}$ and $2\frac{7}{16}$ inches respectively. The largest deflection belonged to the 8-foot span.

When the load was all removed, the permanent set or deflection was found to be $1\frac{1}{16}$ inches for the 6-foot span and $1\frac{3}{8}$ inches for the 8-foot span.

The test was conducted in co-operation with the Bureaus of Buildings of this city, and was witnessed by the following Bureau Engineers and Inspectors:

J. J. Koen	Borough of Brooklyn, New York
A. Schwartz	Borough of Manhattan, New York
F. McGarry	Borough of Manhattan, New York
Thos. Heatley, Jr.	Borough of the Bronx, New York
Daniel Campbell, Jr.	Borough of Queens, New York
Harry Brown	Borough of Richmond, New York
James Moore	Borough of Richmond, New York

The American Steel and Wire Company were represented by:

R. H. Pratt	New York Office
H. F. Demena	New York Office
W. L. Hirsch	Pittsburg Office
E. J. Vetter	Pittsburg Office

Among many others present were:

E. E. Seeley, Engineer	Representative of N. Y. C. & H. R. R.
G. R. Rea, Engineer	Representative Penn. Terminal and Traction Co.
R. W. How, Engineer	Representative Long Island R. R.
Rudolph P. Miller, Consulting Engineer	527 Fifth Avenue, New York
J. G. Ellendt, Consulting Engineer	500 Fifth Avenue, New York
G. H. Stewart	Representative of "Insurance Engineering"
	120 Liberty Street, New York
Robert Butcher	Manager Neuchatel Asphalt Co.
	265 Broadway, New York
J. Traverse	Manager Neuchatel Asphalt Co.
	265 Broadway, New York
R. W. Boyd, Engineer	527 Fifth Avenue, New York
F. C. Fowler, Engineer	General Fireproofing Co.

Respectfully submitted

(Signed) IRA H. WOOLSON

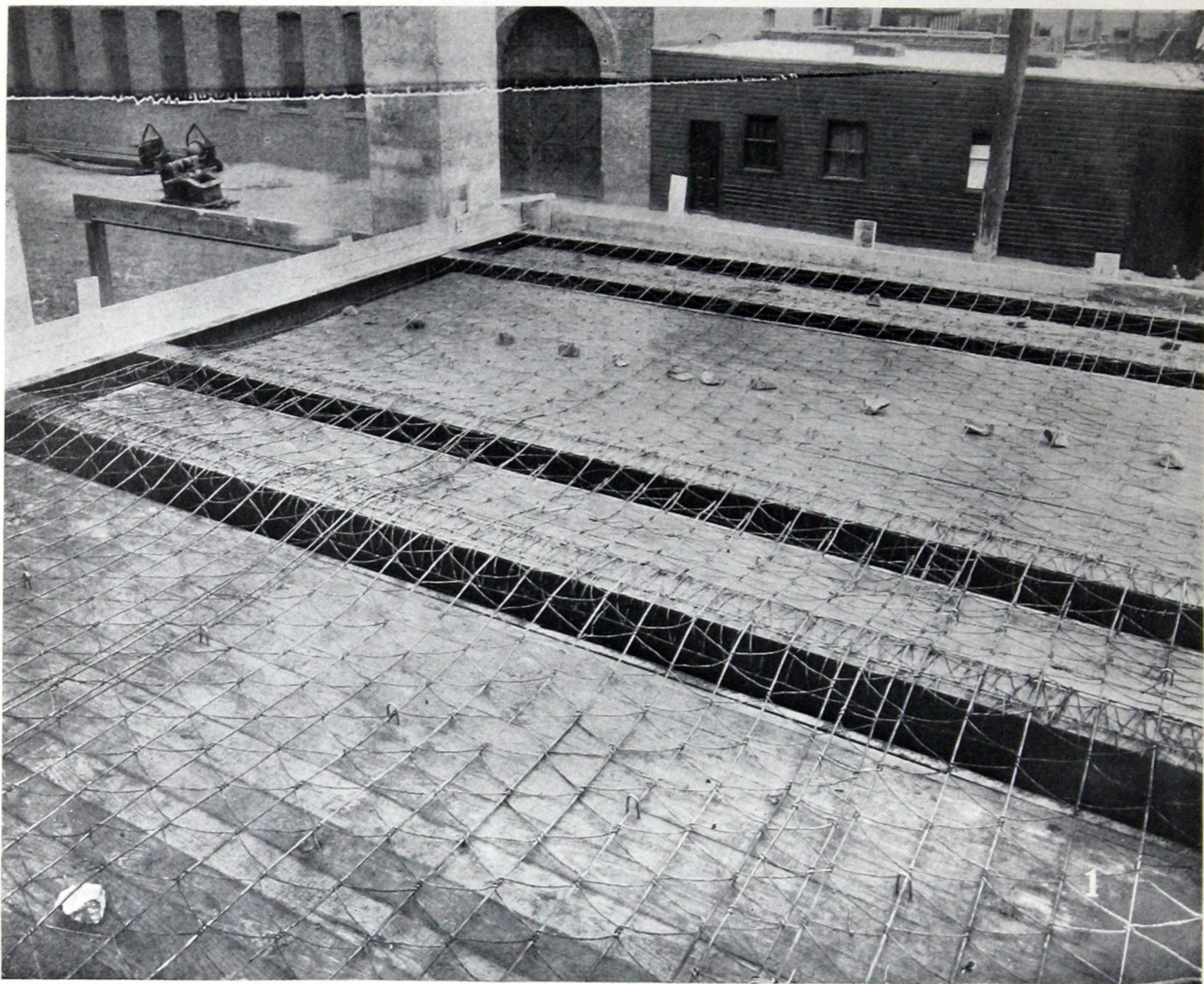
System B

STYLE No. 27, Triangle Mesh, made up of one No. 8 wire in each longitudinal, spaced and tied 4 inches apart with a No. 12½ gauge diagonal on 4-inch centers—which is used in the above type of floor—has been in more general use for the past year than any other fabricated reinforcement.

Part of its great popularity is due to the fact that it was the first economical fabricated reinforcement on the market, and while later tests have given us approvals, which in special cases show greater economy, this type for short span work is and bids fair to remain the most popular.

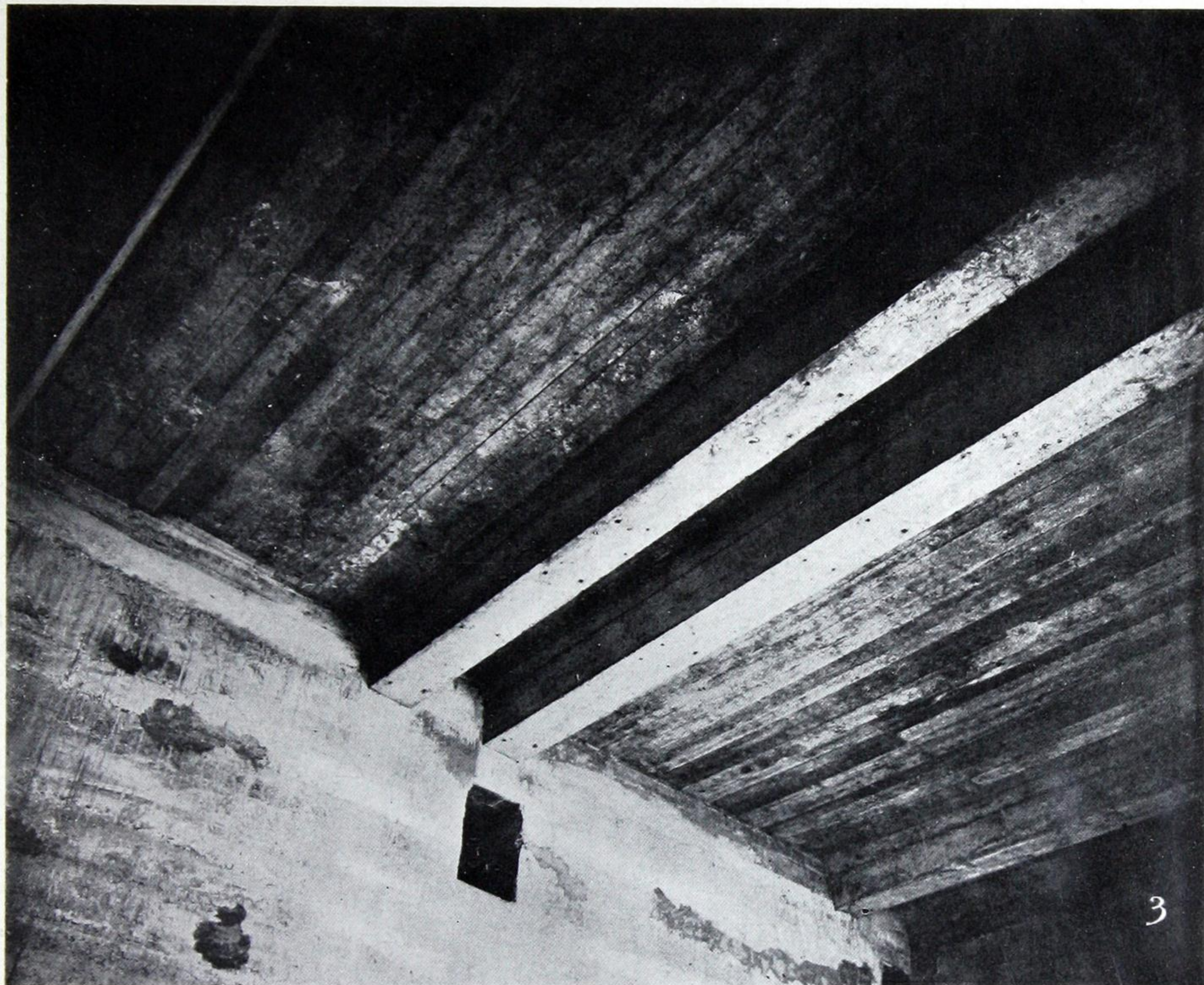
Our sales of this fabric have kept us behind on deliveries during the whole of the past building season (1910), but from now on we expect to be able to keep up with the demand.

System B is used generally in office and loft buildings, where the spans are 6 feet and under and the loads not over 150 pounds per square foot.



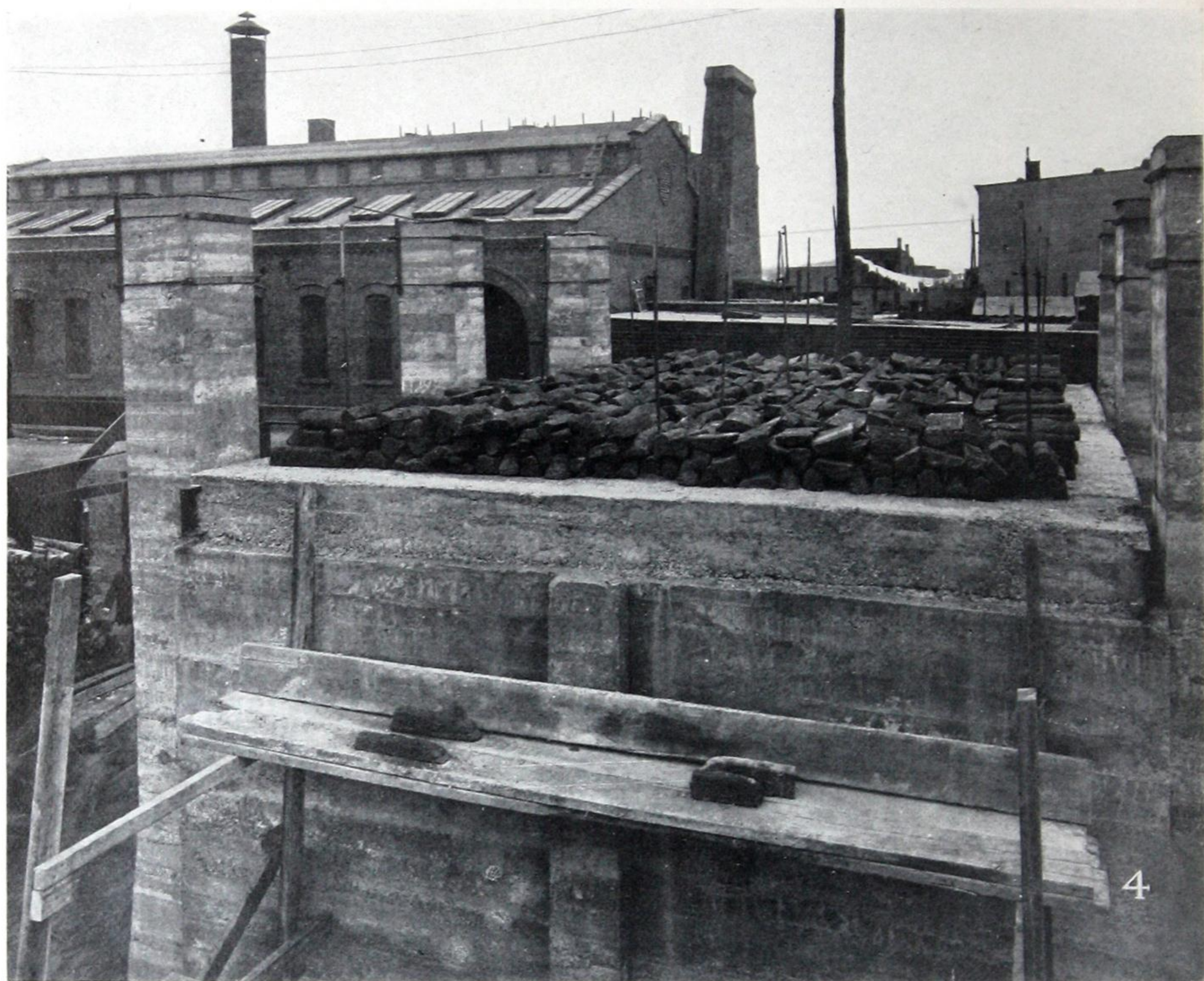
Systems B and D

Reinforcement in place. See page 20



Systems B and D

Appearance of roof before testing

**Systems B and D**

Load applied for fire test



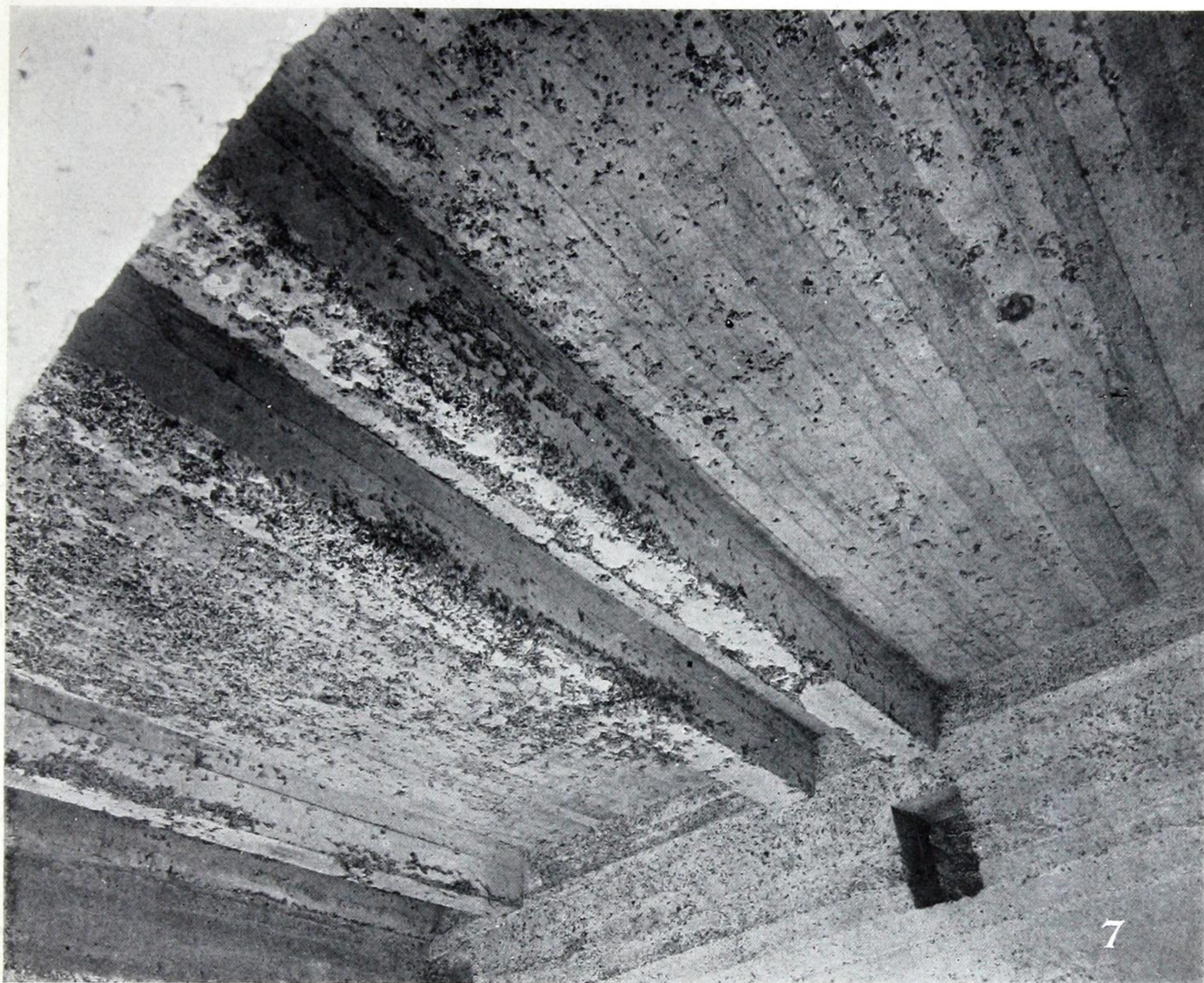
Systems B and D

• Fire test



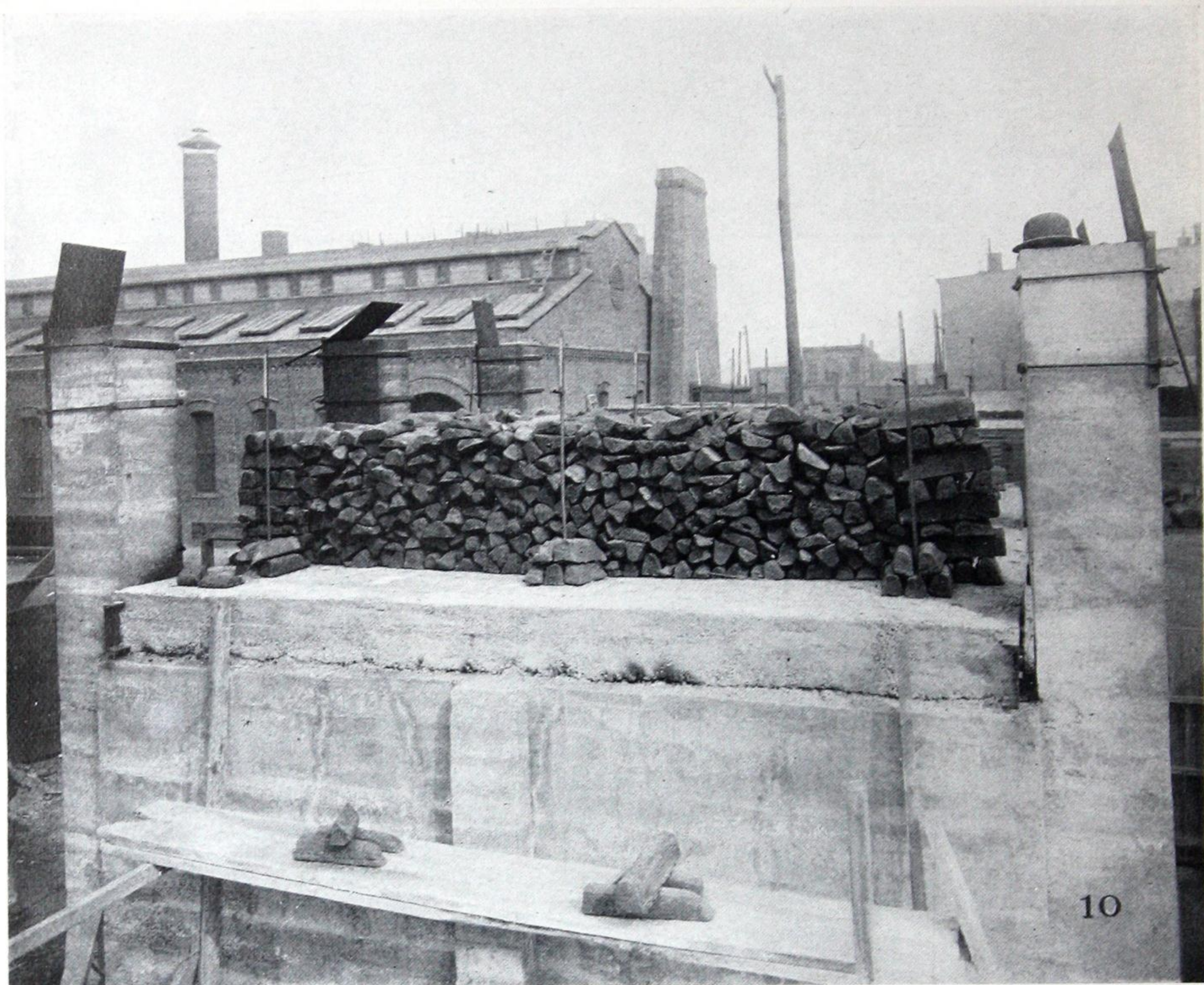
Systems B and D

Applying water



Systems B and D

Appearance of roof after fire test. See page 20

**Systems B and D**

Final load of 600 pounds per square foot

THE BUREAU OF BUILDINGS

FOR THE BOROUGH OF MANHATTAN

220 FOURTH AVENUE

S. W. CORNER 18TH ST

EDWARD S. MURPHY,
SUPERINTENDENT

BY

NEW YORK CITY NOV. 4, 1908.

American Steel & Wire Co.,

50 Church St., City.

Gentlemen:-

As a result of the fire, load and water test on Oct. 8th, 1908, at the testing station, corner of Norman Avenue and Monitor Street, Greenpoint, Brooklyn, your form of reinforced concrete floor construction is hereby approved for general use in the Borough of Manhattan, as a fireproof construction.

The cinder concrete construction is approved as a fireproof floor construction for spans up to six and eight feet, and loads not exceeding one hundred and fifty pounds per square foot, providing that the construction is in all cases as tested.

In case the materials and workmanship in actual practice fall below the standard established in the test construction, this permit will be at once suspended or revoked.

This approval is granted on the further consideration that you will be responsible for the proper installation of this constructions, and that this system will be installed by you or your accepted representative.

Yours truly.

Edward S. Murphy
Superintendent.



MTD/JAH

BUREAU OF BUILDINGS
DAVID F. MOORE, SUPERINTENDENT
JOHN R. ANDERSON, ASSISTANT SUPERINTENDENT

The City of New York
Office of the
President of the Borough of Brooklyn

Borough Hall
Brooklyn November 16th, 1908.

American Steel & Wire Company,
Hudson Terminal, Church St.,
Mr. R. H. Pratt, Sales Agent.

Dear Sir:-

As a result of a fire, water and load test held October 8th, 1908, at Brooklyn, N.Y. your form of Reinforced Cinder Concrete Floor Construction for 6' and 8' span, known as Style No. 27 and No. 26 respectively, is hereby approved for general use in the Borough of Brooklyn as fireproof construction for loads not exceeding 150 lbs per sq. ft., provided that the construction is in all cases as tested.

In case the materials or workmanship in actual practice fall below the standard established in the test construction, this approval will be at once suspended or revoked.

This approval is granted on the further condition that you will be responsible for the proper installation of this construction, and that this system will be installed by you, or your accepted representative.

Yours very truly,

David F. Moore
Superintendent of Buildings,
Borough of Brooklyn.

124 814 01124000

LOUIS F. HAFEN
PRESIDENT OF THE BOROUGH OF THE BRONX

PATRICK J. REVILLE
SUPT. OF BLDGS. - BOROUGH OF THE BRONX

THE CITY OF NEW YORK

Office of

BUREAU OF BUILDINGS.

BOROUGH OF THE BRONX.

Municipal Building - THIRD AVE. & 177TH ST
H.A.D.

New York, November 16th, 1908.

American Steel & Wire Co.,
Hudson Terminal,
130 Church Street, City.

Gentlemen,-

As a result of the fire, water and load test applied on Oct. 8th, 1908, at the Columbia University Fire Testing Station, your form of reinforced concrete floor construction is hereby approved for general use in the Borough of The Bronx, as a fireproof construction.

The cinder concrete construction is approved as a fireproof floor construction for spans up to 8' 0", and loads not exceeding 150 pounds per square foot, providing that the construction is in all cases as tested.

In case the materials and workmanship in actual practice fall below the standard established in the test construction, this permit will be at once suspended or revoked.

This approval is granted on the further consideration that you will be responsible for the proper installation of this construction, and that this system will be installed by you, or your accepted representative.

Yours very truly,

Patrick J. Reville
Superintendent of Buildings,
Borough of The Bronx.

BUREAU OF BUILDINGS,

BOROUGH OF QUEENS

HACKETT BUILDING,

LONG ISLAND CITY.

CARL BERGER,
SUPERINTENDENT

November 27th, 1908. 190

American Steel & Wire Co.,

#30 Church Street, N. Y. City.

Gentlemen,

In accordance with the report of Prof. Ira H. Woolson, on the fire, water and load test of the American Steel & Wire Company's Triangular Mesh Reinforcement, the same is hereby approved for general use in the Borough of Queens.

In case the materials and workmanship in actual practice fall below the standard established in the test construction, this approval will be at once suspended and revoked.

This approval is granted on the further consideration that you will be responsible for the proper installation of this construction, and that this system will be installed by you, or your accepted representatives.

Respectfully yours,

Carl Berger
Superintendent.

BUREAU OF BUILDINGS,

BOROUGH OF RICHMOND.
NEW BRIGHTON.

JOHN SEATON,
SUPERINTENDENT

New York City,

November 25, 1908.

R. H. Pratt, Esq.,
Sales Agent for The American Steel & Wire Co.,
Hudson Terminal Bldg., New York.

Dear Sir,-

As a result of the fire, water and load test, which took place Oct. 8th, 1908, at the Columbia Fire Testing Station, New York City, your triangular reinforced concrete floor construction is hereby approved for general use in the Borough of Richmond as a fireproof construction, for spans of 6' 0" and 8' 0", designated as styles Nos. 26 and 27, and loads not exceeding 150 lbs. per square foot, providing the construction is in all cases as tested.

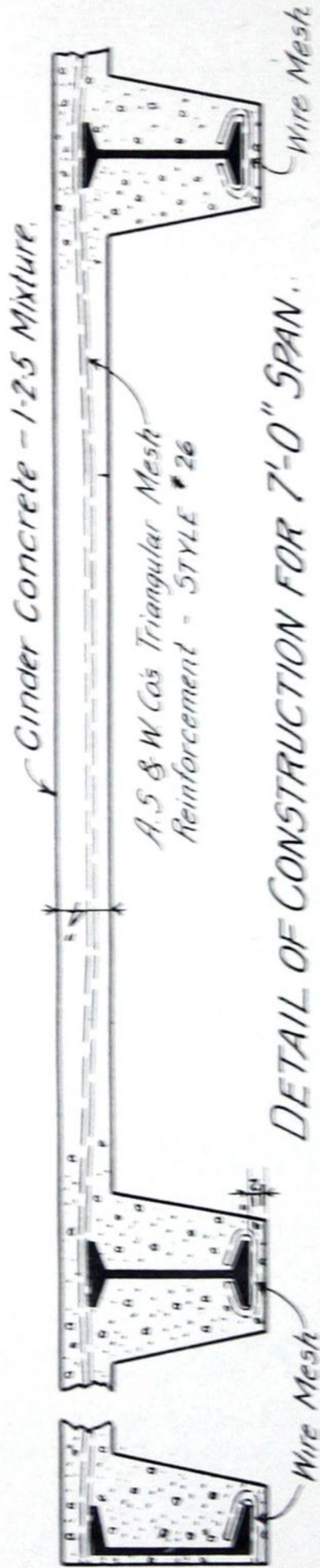
In case the materials and workmanship in actual practice fall below the standard established in the test construction, this permit will be at once suspended or revoked.

This approval is granted on the further consideration that your company will be responsible for the proper installation of this construction, and that this system will be installed by said Company, or their accepted representative.

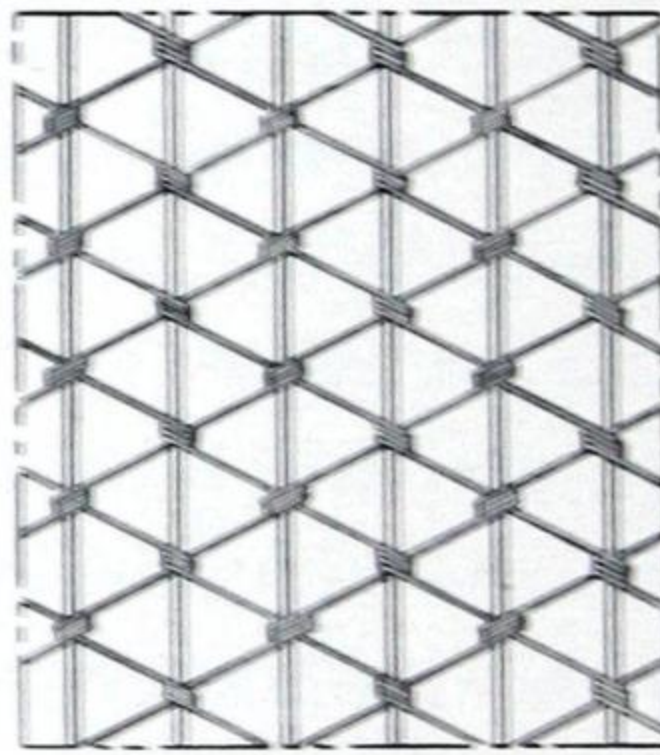
Yours very truly,

John Seaton
Superintendent of Buildings,
Borough of Richmond

TRIANGLE MESH SYSTEM C.



DETAIL OF CONSTRUCTION FOR 7'-0" SPAN.



Style # 26 —
Longitudinal members # 6 gauge wire
4" o.c., sectional area per ft. of width
.087 sq. inches. Cross wires # 12½ gauge,
4" mesh. Total cross sectional area
per ft. of width .110 sq. inches.

Note.

This system was tested May 12th 1910
for the Boroughs of Buildings of the
Five Boroughs of Greater New York and
approved May 23rd 1910 for live loads up
to and including 150 # per sq. ft. when
constructed as tested

FIREPROOF FLOOR OF CONCRETE
REINFORCED WITH TRIANGULAR MESH REINFORCEMENT
MADE BY

AMERICAN STEEL & WIRE COMPANY
NEW YORK. CHICAGO.

DETAIL OF REINFORCEMENT.

Aug. 8th 1910

System C

Report of Load Test on 4-Inch Cinder Concrete Slab, 7-Foot Span, Reinforced with American Steel and Wire Company's Triangle Mesh Reinforcement, Style No. 26.

THE load test herein described was made in the yard of the Charles A. Lefferts Iron Foundry, corner of Second Avenue and 11th Street, Borough of Brooklyn, on May 12, 1910.

The slab tested was constructed of cinder concrete mixed in the proportions of one part Portland cement, two parts sand and five parts cinders. The slab was 4 inches in thickness and had a span of 7 feet center to center of supporting beams. The reinforcement consisted of Style No. 26, American Steel and Wire Company's Triangle Mesh Reinforcement. The construction is generally indicated on the blueprint herewith attached. The cement was Alpha Portland, the sand was yellow Cow Bay sand, and the cinders were obtained from a local yard.

The installation of the test slab took place on April 15th, and was witnessed by representatives from the Bureaus of Buildings of the Boroughs of Manhattan, Bronx, Brooklyn and Richmond.

On May 12th the test load was applied. For the purpose of reading deflections, wires were stretched on each side of the slab between supporting beams and the deflections read on scales secured to the concrete at the edge of the slab at the middle of the span. The load was applied by means of pig iron, care being taken in placing the first layers to see that none of the pigs projected over the steel beams. The weight of the pig iron was determined by weighing the pigs on platform scales. The loading was begun about 10 a. m. and was continued until about 1.30 p. m., at which time about 25,500 pounds, or about 730 pounds per square foot, had been applied. The loading was then discontinued by reason of a shortage in pig iron until 4.30, when the loading was resumed. The loading was concluded about 6.30 p. m.

When 13,000 pounds had been applied, or about 370 pounds per square foot, the slab showed a deflection of $\frac{1}{16}$ inch. When 18,800 pounds had been applied, about 537 pounds per square foot, the deflection was $\frac{1}{4}$ inch, and two hair cracks were observed on the under side of the slab near the middle. As the loading continued the slab continued to deflect, until at the final load of 51,655 pounds the slab showed a deflection of about 2 inches. The cracks on the under side opened up somewhat and additional cracks appeared in the top of the slab over the supporting steel beams. Cracks also appeared at the haunches near the supports.

The loading was discontinued after the total load of 51,655 pounds, or about 1470 pounds per square foot had been reached. The slab did not fail under this load, but the shape of the pile of pig iron and its height made it seem unwise to continue further loading, owing to the danger to the workmen.

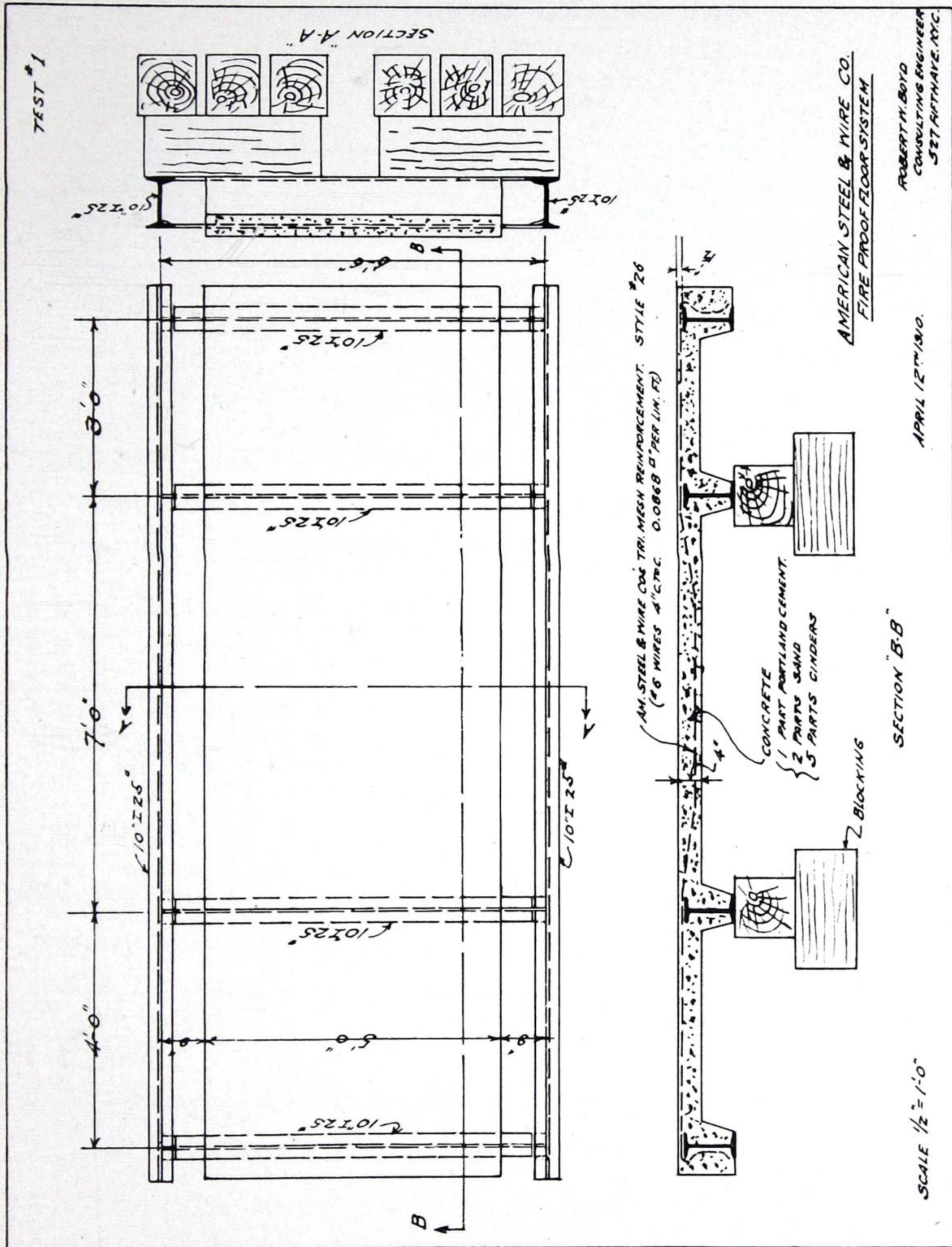
The loading of the slab was witnessed by A. Schwartz, of the Bureau of Buildings, Borough of Manhattan; J. C. Shackenberg, of the Bureau of Buildings, Borough of Brooklyn; Thomas Heatley, of the Bureau of Buildings, Borough of the Bronx; Daniel Campbell, Bureau of Buildings, Borough of Queens; R. H. Pratt and P. T. Coons, representing the American Steel and Wire Company; Charles A. Lefferts, of the Charles A. Lefferts Company, Incorporated; also Robert W. Boyd, Consulting Engineer, 105 West 40th Street, New York, under whose supervision the test was made.

(Signed) ROBERT W. BOYD

Dated May 14, 1910.

The necessity for this particular system is due to the exigencies of design in which a span longer than 6 feet is required, but light structural members are used, thus calling for the lightest possible dead load.

At the time this test was made (May 12, 1910) we had already been approved for an 8-foot span using this same reinforcement, but in order to carry the load with the factor of safety necessary the test had been made on a 5-inch slab, so that to meet the conditions as outlined above it was necessary to test this system, which, as will be seen from the reproductions on the following pages, has become extremely popular.



THE BUREAU OF BUILDINGS

FOR THE BOROUGH OF MANHATTAN

220 FOURTH AVENUE

S.W. CORNER 18TH ST

LC

RUDOLPH P. MILLER,
SUPERINTENDENT.

New York City, May 23, 1910

American Steel & Wire Company,

Hudson Terminal Building, City.

Dear Sirs:

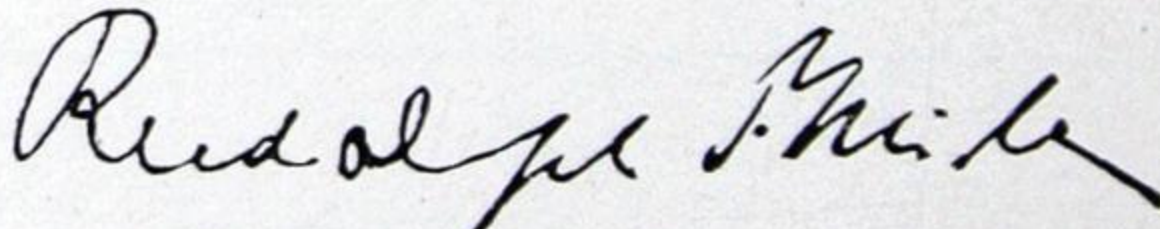
As a result of the loading tests on May 12, 1910, at the yards of Chas. A. Sefferts Iron Foundry, corner of Second Avenue and 11th Street, Borough of Brooklyn, your form of reinforced concrete floor construction is hereby approved for general use in the Borough of Manhattan, as a fireproof construction; viz:-

1,2,5 circular concrete slab, 4" thick, American Steel & Wire Company's triangular mesh reinforcement, style #26, for a span of seven feet and a working load of 150 lbs. per sq. ft.

In case the materials and workmanship in actual practice fall below the standard established in the test construction, this permit will be at once suspended or revoked.

This approval is granted on the further consideration that you will be responsible for the proper installation of this construction, and that this system will be installed by you or your accepted representative.

Yours truly,



Superintendent.



MTD/JAH

BUREAU OF BUILDINGS
JOHN THATCHER, SUPERINTENDENT
WILLIAM A. COAKLEY, ASSISTANT SUPERINTENDENT

The City of New York
Office of the
President of the Borough of Brooklyn

Borough Hall
Brooklyn June 7th, 1910

American Steel & Wire Company,
105 West 40th St.,
New York City.

Mr. Robert W. Boyd, Consulting Eng.

Dear Sir:

As a result of the load test made on a 4" cinder concrete slab, on May 12th, 1910, at Brooklyn, N.Y., your form of Reinforced Cinder Concrete Floor Construction, for 7'0" span, reinforced with the American Steel and Wire Company's Triangular Mesh Reinforcement, Style #26, (#6 Wire 4" C. to C.) is hereby approved for general use in the Borough of Brooklyn, as fireproof construction, for live loads not exceeding 150# per sq.ft., provided that the construction is in all cases as tested.

In case the materials or workmanship in actual practice fall below the standard established in the test construction, this approval will be at once suspended or revoked.

This approval is granted on the further condition that you will be responsible for the proper installation of this construction, and that this system will be installed by you, or your accepted representative.

Yours very truly,

John Thatcher
Superintendent of Buildings,
Borough of Brooklyn.

THE CITY OF NEW YORK.

Office of

BUREAU OF BUILDINGS,

BOROUGH OF THE BRONX.

Municipal Building - THIRD AVE. & 177TH ST.

New York July 6th, 1910.

Robert W. Boyd, Esq.,

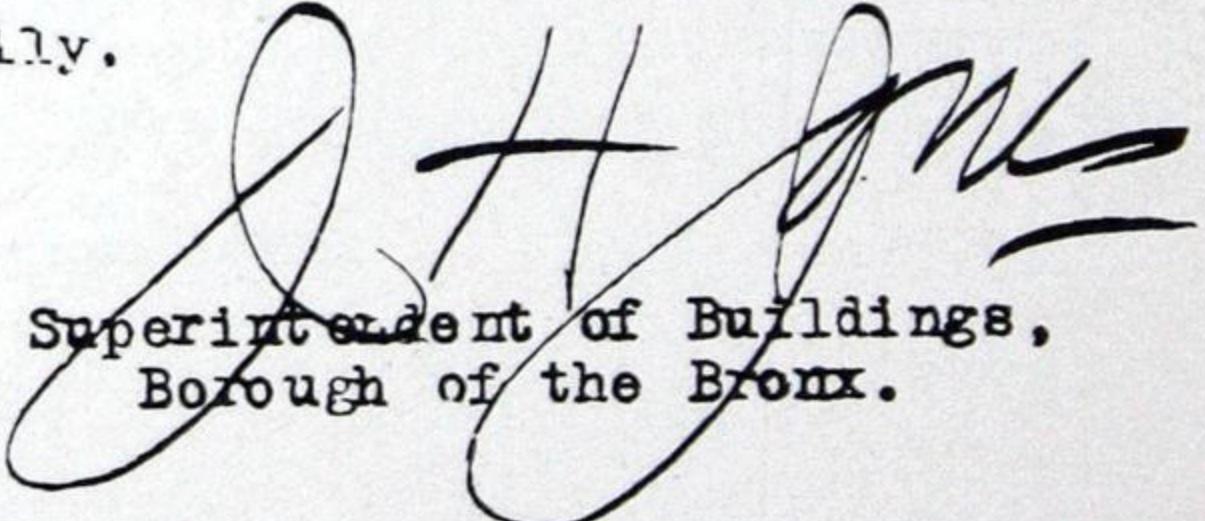
Consulting Engineer,

105 West 40th St., City.

Sir:-

The American Steel and Wire Company's four inch cinder concrete arch, made up in the proportions of one of Portland Cement, two parts of Sand and five parts of cinder, up to seven foot span, same reinforced with their triangular mesh re-inforcement, Style No.26, has been approved for use in this Borough, with a live load on same not to exceed 150 lbs. per square foot.

Respectfully.


Superintendent of Buildings,
Borough of the Bronx.

BUREAU OF BUILDINGS,

BOROUGH OF RICHMOND,
NEW BRIGHTON.

JOHN SEATON,
SUPERINTENDENT

New York City, July 19th, 1910.

Mr. Robert W. Boyd,

105 West 40th St., New York.

Dear Sir:

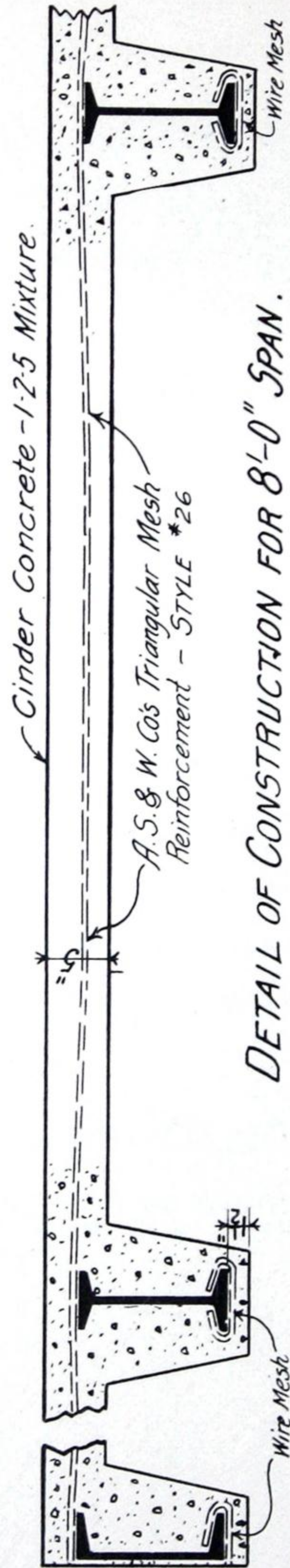
Replying to your communication of June 24th I beg to advise that your 7'-0" cinder concrete arch 4 inches in thickness reinforced with triangular mesh style No. 26 is approved for use in this Borough and also 4 inch cinder concrete slab on a 6'-0" span reinforced with American steel and Wire Co's triangular mesh reinforcement style No. 24 for a live load up to 400 pounds per square foot.

Yours respectfully,

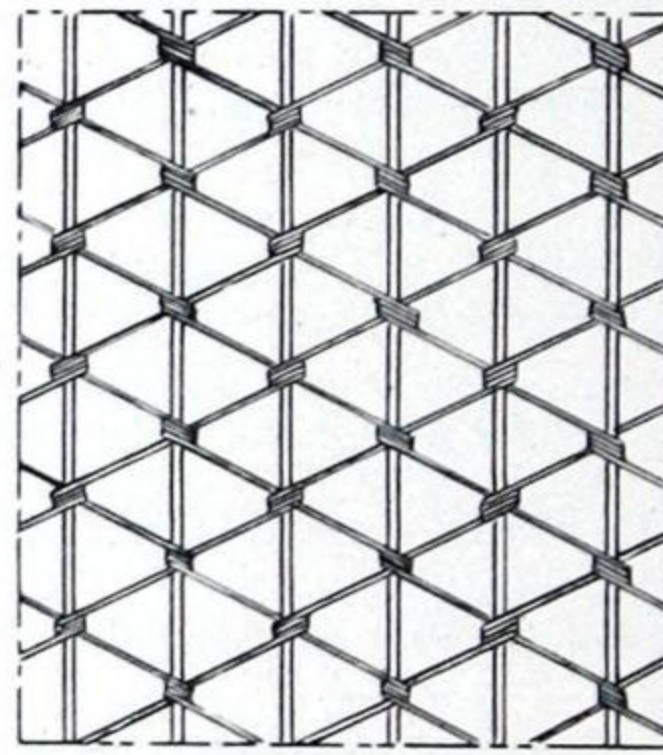
John Seaton

Superintendent of Buildings,
Borough of Richmond.

TRIANGLE MESH SYSTEM D.



DETAIL OF CONSTRUCTION FOR 8'-0" SPAN.



Style #26 —
Longitudinal members #6 gauge wire
4" o.c., sectional area per ft. of width
.087 Sq. inches. Cross wires #12½ gauge,
4" mesh. Total cross sectional area
per ft. of width .110 sq. inches.

DETAIL OF REINFORCEMENT.

Note

This system was tested Oct 8th 1910
for the Boroughs of Buildings of the
Five Boroughs of Greater New York and
approved Nov. 4th 1908 for live loads up
to and including 150* per sq ft. when
constructed as tested.

FIREPROOF FLOOR OF CONCRETE
REINFORCED WITH TRIANGULAR MESH REINFORCEMENT
MADE BY

AMERICAN STEEL & WIRE COMPANY
NEW YORK CHICAGO.

System D

For Reports and Approvals on this Test, See Pages 16 to 35 Inclusive.

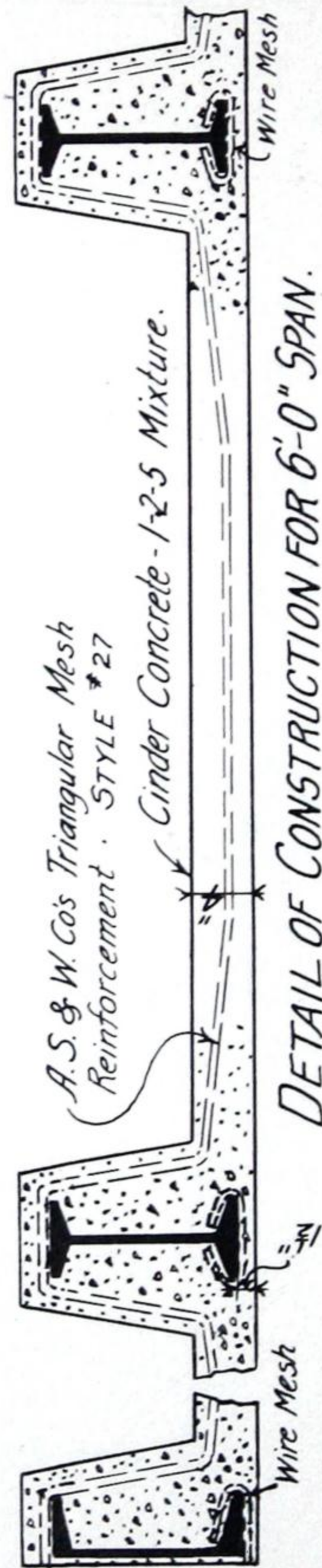
THE material covered by the foregoing test meets nearly all the conditions likely to be found in fireproof construction where cinder concrete is the aggregate, as it is not deemed wise by the authorities here to permit the use of cinder concrete for a span greater than 8 feet.

Triangle Mesh Reinforcement, Style No. 26, is made up of one No. 6 wire in each longitudinal, spaced and tied 4 inches apart with a No. 12½ gauge diagonal on 4-inch centers, and this particular type of reinforcement is more generally used throughout the country than any other one style of fabricated reinforcement, irrespective of the aggregate used.

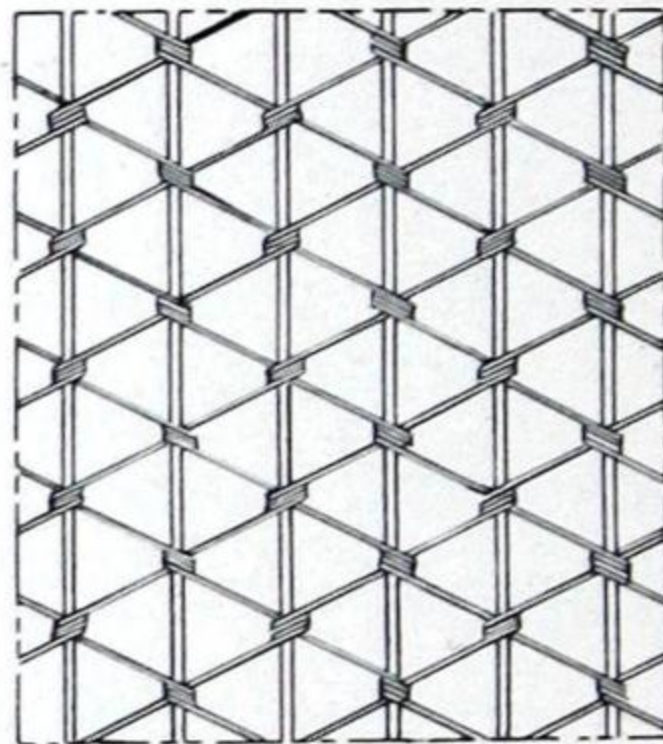
The "New York City Tests" is written to record conditions that exist in the use of Triangle Mesh Reinforcement in the Metropolis, and this explanation is given that we may not seem to advocate the use of cinder concrete as against stone or gravel aggregates.

Not over 10 per cent. of our product is used with cinders, but this use is comparatively new and therefore probably interesting.

TRIANGLE MESH SYSTEM E.



DETAIL OF CONSTRUCTION FOR 6'-0" SPAN.



Style # 27 —
Longitudinal members #8 gauge wire
4" o.c.; sectional area per ft. of width
.062 Sq. inches. Cross wires #12 gauge
4" mesh. Total cross sectional area
per ft. of width .085 sq. inches

Note.

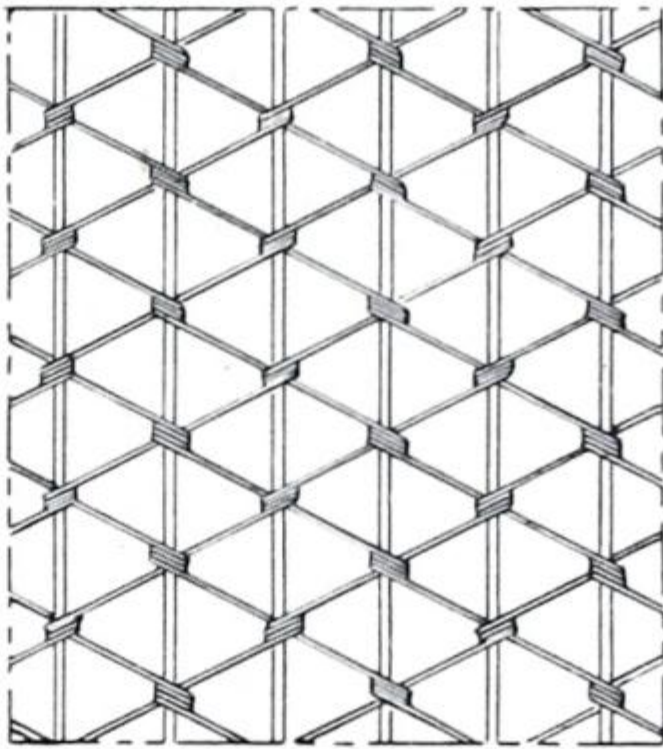
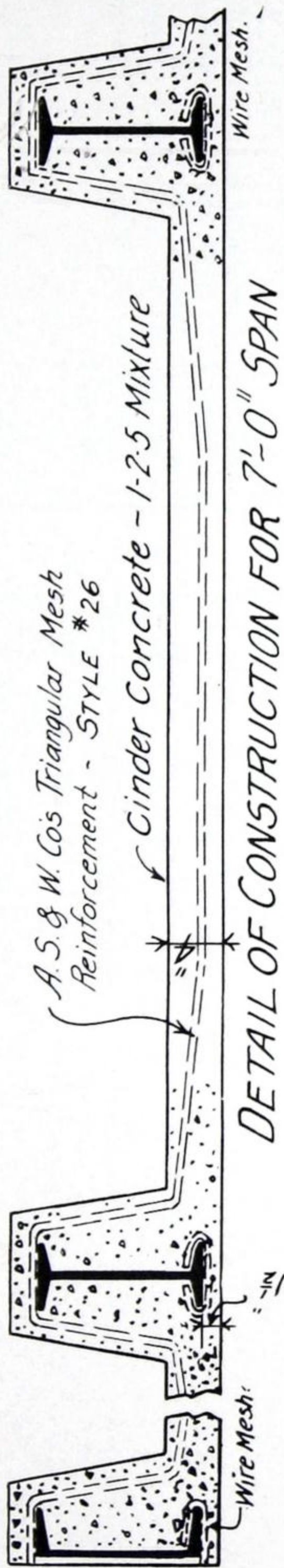
This system was approved July 19th 1910
for live loads up to, and including 150*
per sq. ft. based on tests made Oct-
8th 1908, before the Bureau of Build-
ings of the Five Boroughs of Greater
New York.

FIREPROOF FLOOR OF CONCRETE
REINFORCED WITH TRIANGULAR MESH REINFORCEMENT
MADE BY

AMERICAN STEEL & WIRE COMPANY
NEW YORK CHICAGO.

DETAIL OF REINFORCEMENT.

TRIANGLE MESH
SYSTEM F.



Style # 26 —
Longitudinal members #6 gauge wire,
4" o.c.; sectional area per ft. of width
.087 5q. inches. Cross wires #12 gauge
4" mesh. Total cross section
per ft. of width 110 5q. inches.

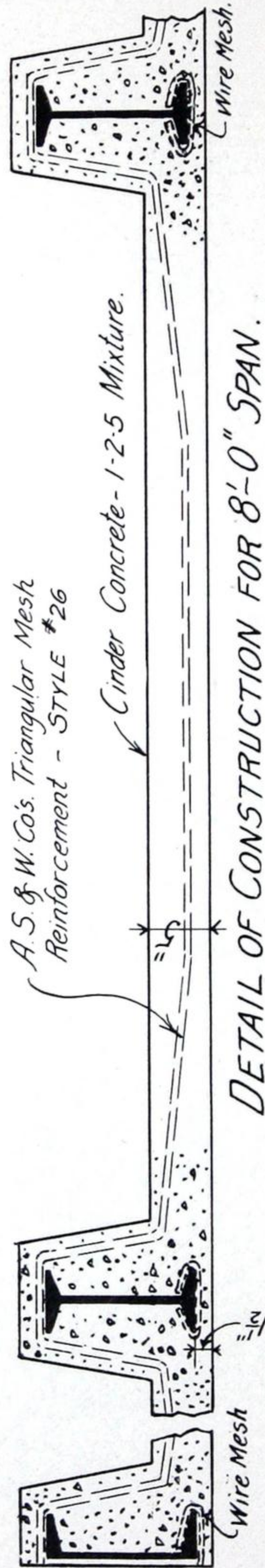
Note.

This system was approved July 19th 1910
for live loads up to, and including 150*
per sq. ft. based on tests made May
12th 1910, before the Bureau of Build-
ings of the five Boroughs of Greater
New York.

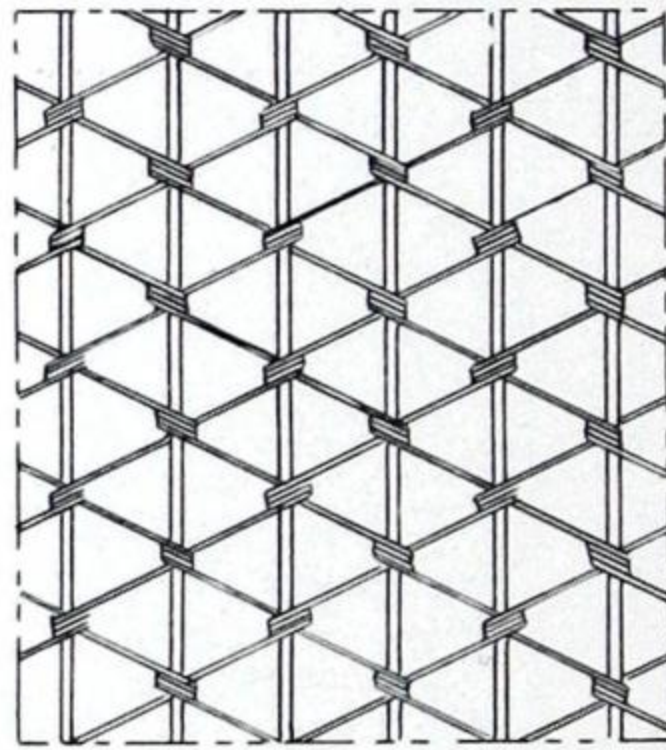
FIREPROOF FLOOR OF CONCRETE
MADE BY
AMERICAN STEEL & WIRE COMPANY
NEW YORK CHICAGO.

Aug. 8th 1910

TRIANGLE MESH SYSTEM G.



DETAIL OF CONSTRUCTION FOR 8'-0" SPAN.



Style # 26 —
Longitudinal members #6 gauge wire
4" o.c.; sectional area per ft. of width
.087 sq. inches. Cross wires #12½ gauge
4" mesh; Total cross sectional area
per ft. of width .110 sq. inches.

Note.

This system was approved July 19th 1910
for live loads up to, and including 150 *
per sq. ft. based on tests made Oct.
8th 1908, before the Bureau of Build-
ings of the five Boroughs of Greater
New York.

FIREPROOF FLOOR OF CONCRETE
REINFORCED WITH TRIANGULAR MESH REINFORCEMENT
MADE BY
AMERICAN STEEL & WIRE COMPANY
NEW YORK CHICAGO.

THE BUREAU OF BUILDINGS
FOR THE BOROUGH OF MANHATTAN
220 FOURTH AVENUE
S.W. CORNER 18TH ST.

RUDOLPH P. MILLER,
SUPERINTENDENT.

RPM--D New York City 19 July 1910

AMERICAN STEEL AND WIRE COMPANY,

30 Church Street, City.

Gentlemen,-

In reply to the oral request of your Mr. Pratt, I would say that any cinder concrete floor slab resting on the lower flanges will be accepted for the same span and load as a similar slab tested and approved for the upper flanges of the beams, provided the thickness of the slab, mixture of the material and the amount of reinforcement, and the arrangement of the same, are exactly alike in the two cases.

Yours truly,

Rudolph P. Miller
Superintendent

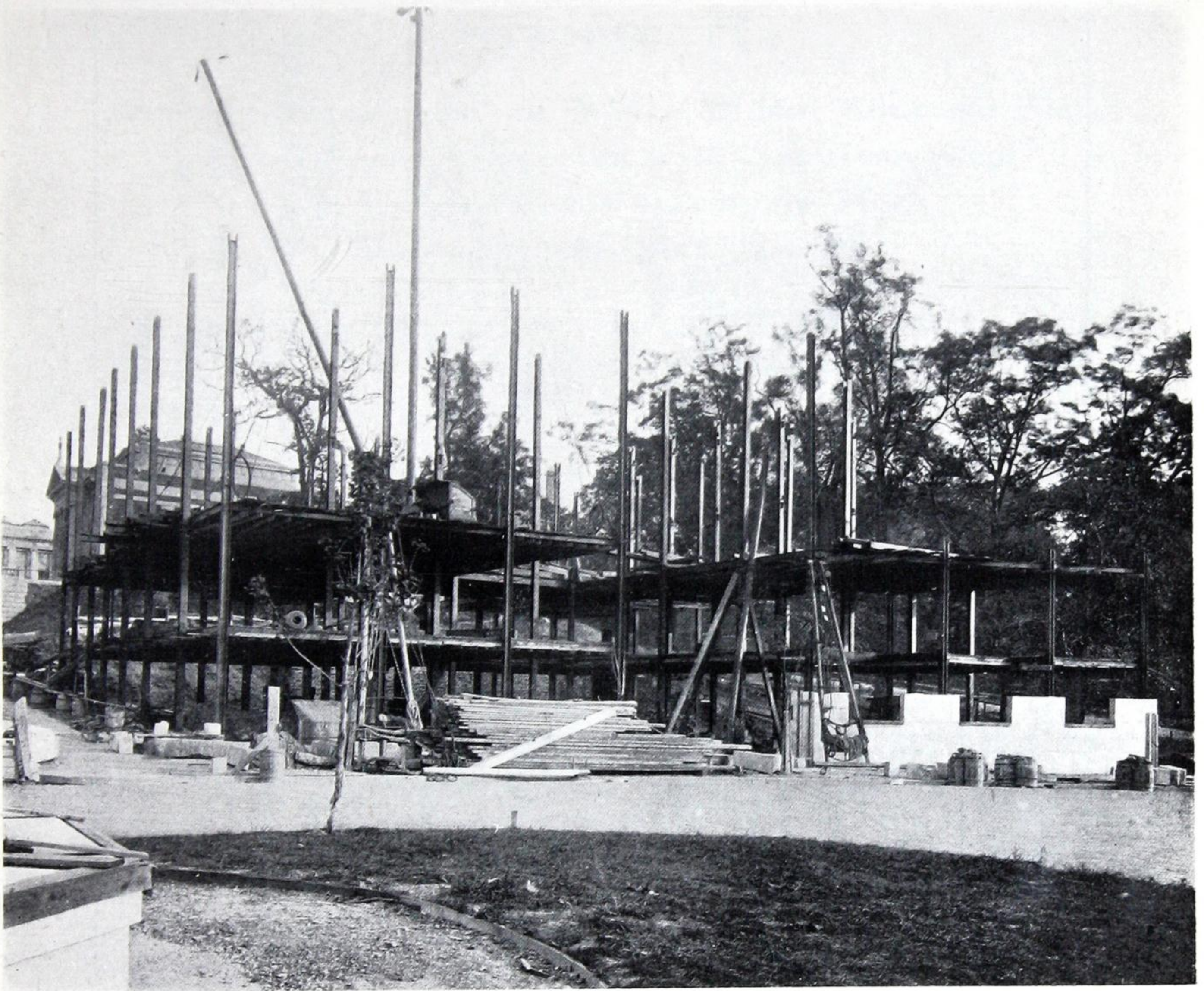
Systems E, F and G

IN many building operations the architect can design the structure so that permanent partitions will be located to do away with the objectionable feature of haunched beam ceilings, but in others the partitions are subject to change by the tenant, and the ceiling must present an unbroken surface.

The types of floor construction shown by the foregoing Systems E, F and G cover various spans and designs to produce this result.

This form of floor construction is used to a very large extent in the first or fireproof floors of five-story apartment buildings, or in the first and second floors, where stores occupy the first floor of same.

There is a great tonnage of reinforcement marketed for this particular use, and as its need is very apparent, our sales of reinforcement for this use will doubtless continue to increase.



156th Street and Riverside Drive

SCHWARTZ & GROSS, *Architects*

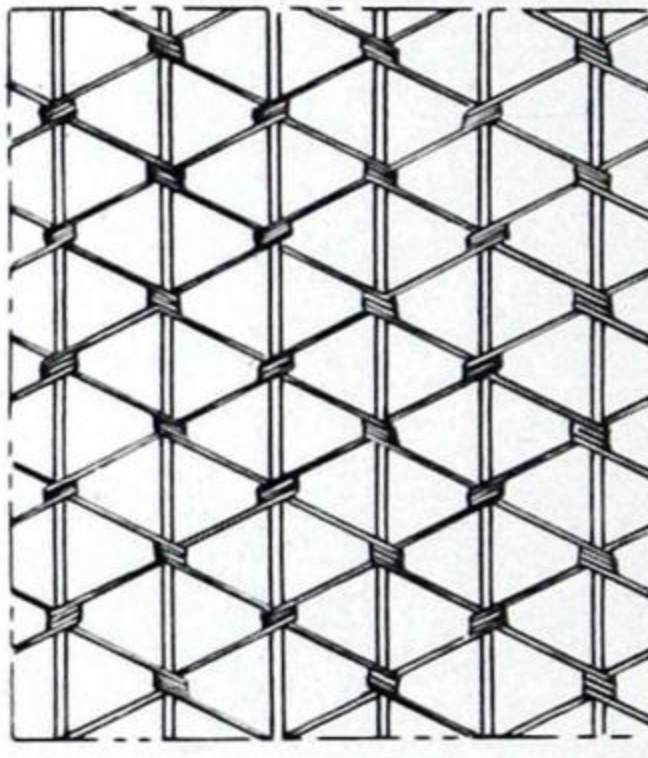
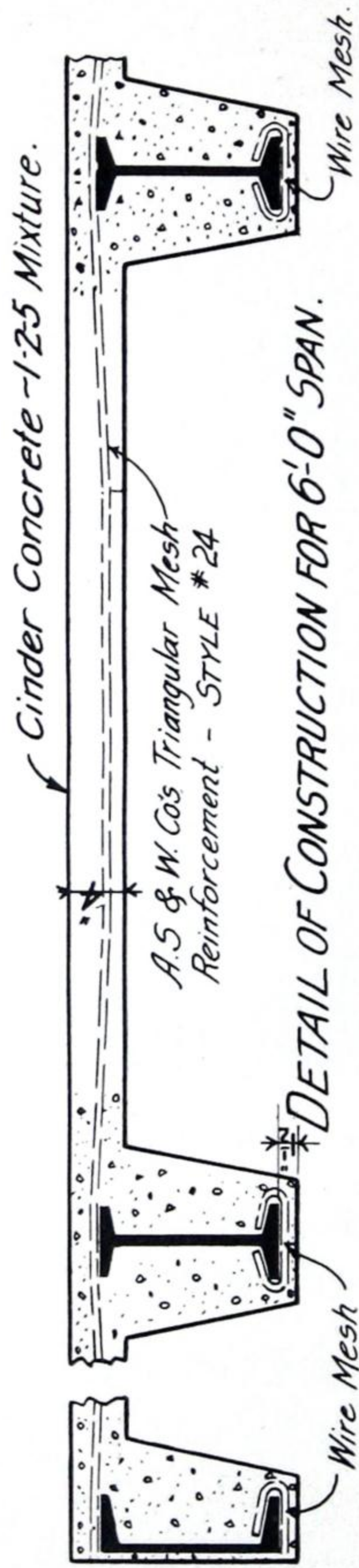
WILLE CONSTRUCTION CO., *Contractors*

PIETROWSKI & KONOP, *Fireproofers*

78,400 square feet Triangle Mesh Reinforcement used

System E

TRIANGLE MESH
SYSTEM H



Style # 24. —
Longitudinal members #4 gauge wire
4" o.c., sectional area per ft of width
~119 Sq inches. Cross wires #12½ gauge,
4" mesh. Total cross sectional area
per ft of width .142 sq. inches.

Note.

This system was tested July 1st-7th 1910
for the Bureaus of Buildings of the
Five Boroughs of Greater New York and
approved July 27th 1910 for live loads up
to and including 400* per sq ft. when
constructed as tested.

DETAIL OF REINFORCEMENT.

FIREPROOF FLOOR OF CONCRETE
REINFORCED WITH TRIANGULAR MESH REINFORCEMENT
MADE BY
AMERICAN STEEL & WIRE COMPANY
NEW YORK CHICAGO.

System H

Report of Load Test on 4-Inch Cinder Concrete Slab, 6-Foot Span, Reinforced with American Steel and Wire Company's Triangle Mesh Reinforcement, Style No. 24

THE load test herein described was made in the yard of the Charles A. Lefferts Iron Foundry, corner of Second Avenue and 11th Street, Borough of Brooklyn, on July 1 and July 7, 1910.

The slab tested was constructed of cinder concrete mixed in the proportions of one part Portland cement, two parts sand and five parts cinders. The slab was 4 inches in thickness and had a span of 6 feet center to center of supporting beams. The reinforcement consisted of Style No. 24, American Steel and Wire Company's Triangle Mesh Reinforcement. The cement was Alpha Portland, the sand yellow Cow Bay sand, and the cinders steam coal cinders from a local yard. The construction is generally indicated on the blue-print herewith attached.

The installation of the test slab took place on May 31st and was witnessed by representatives of the Bureaus of Buildings of the Boroughs of Manhattan, Bronx and Brooklyn.

On July 1st the loading of the test slab was begun. The method of loading was as follows: On top of the slab a layer of cinders was placed about 1 inch in thickness, above which one tier of pig iron was laid, care being taken that none of the load projected over the steel beams, all the weight being carried by the slab between beams. On top of the first tier of pig iron were placed more cinders to form an even bed for five 10 by 12 inch timbers, about 10 feet 6 inches in length laid on the flat, side by side across the slab parallel with the supporting beams. The position of these timbers is indicated in the photograph herewith attached. Deflections were read by measuring the distance from the middle timber to the top of the longitudinal I beam into which the supporting beams framed. On top of the 10 by 12 inch timbers pig iron was piled. A portion of the pig iron was weighed as it entered the yard on large platform scales and the remainder was weighed on small platform scales as it was applied. The loading began about 10 a. m. When 60,650 pounds, or about 2000 pounds per square foot, had been applied the slab showed a deflection of $\frac{1}{2}$ inch. When 77,450 pounds had been applied, or about 2580 pounds per square foot, the slab showed a deflection of $\frac{3}{4}$ inch. After a load of 105,350 pounds had been applied the loading was discontinued for the day. The slab at that time showed a deflection of $\frac{15}{16}$ inch. The loading was suspended about 6.15 p. m.

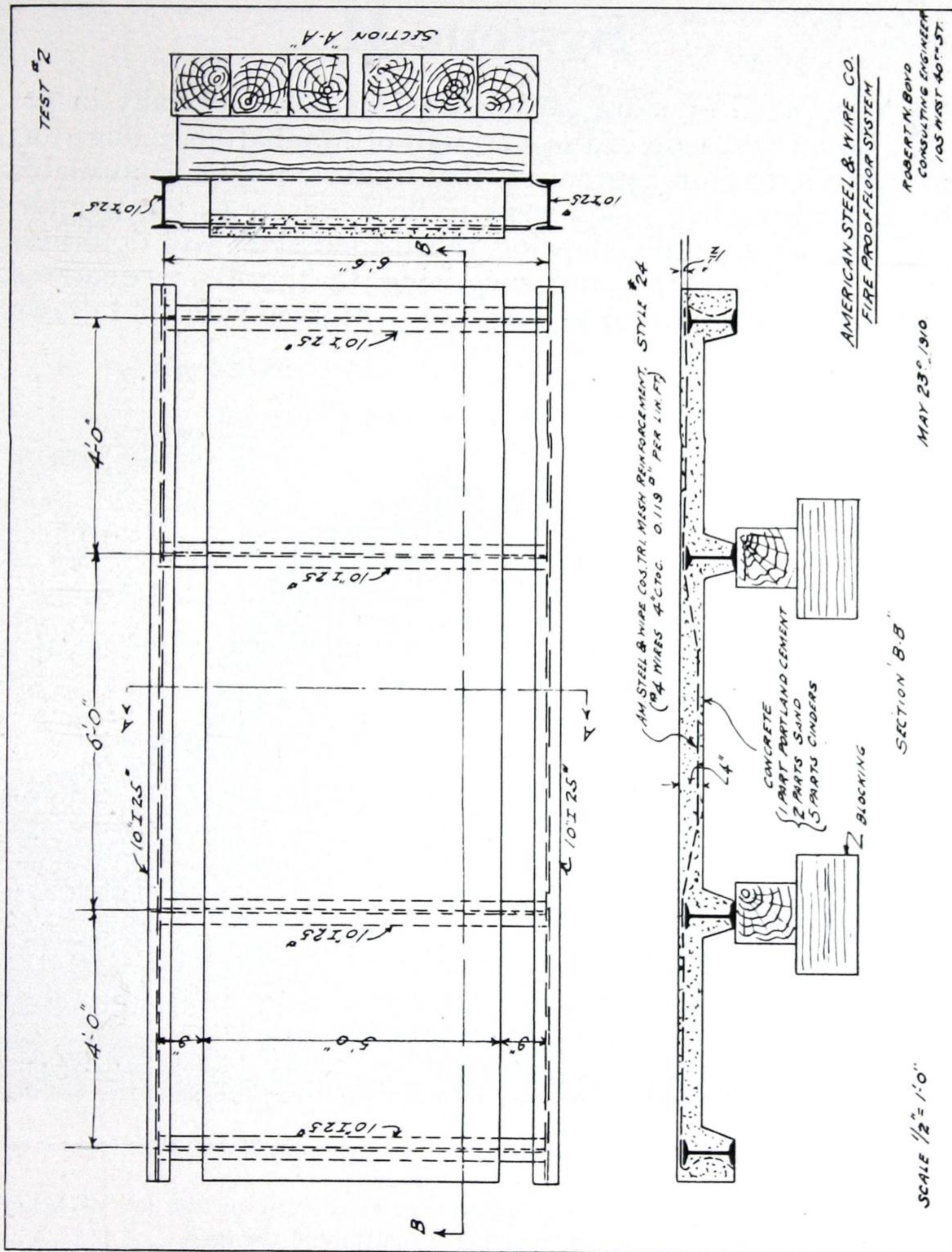
On July 7th, at about 9.30 a. m., the loading of the slab was resumed. Before any additional load was placed on the slab the deflection was read and was found to be about $1\frac{1}{16}$ inches. At about 11.30 a. m. the loading was discontinued after a load of 120,205 pounds, or about 4000 pounds per square foot, had been applied. At this time the pile of pig iron was about $9\frac{1}{2}$ feet high above the distributing timbers. The slab did not fail under this load but the height of the pile of pig iron made it seem unwise to continue further loading, owing to the danger to the workmen. The final deflection was $1\frac{1}{8}$ inches.

After the final load had been applied an examination of the slab showed that cracks had opened up in the top of the slab in the adjoining spans beyond the supporting beams, and that fine cracks were visible in the under side of the slab near the middle. There were no signs of immediate failure.

The loading of the slab was witnessed by A. Schwartz, of the Bureau of Buildings, Borough of Manhattan; Inspector Wilkinson, of the Bureau of Buildings, Borough of Brooklyn; Thomas Heatley, of the Bureau of Buildings, Borough of Bronx; R. H. Pratt, representing the American Steel and Wire Company; also Robt. W. Boyd, consulting engineer, 105 West 40th Street, New York, under whose supervision the test was made.

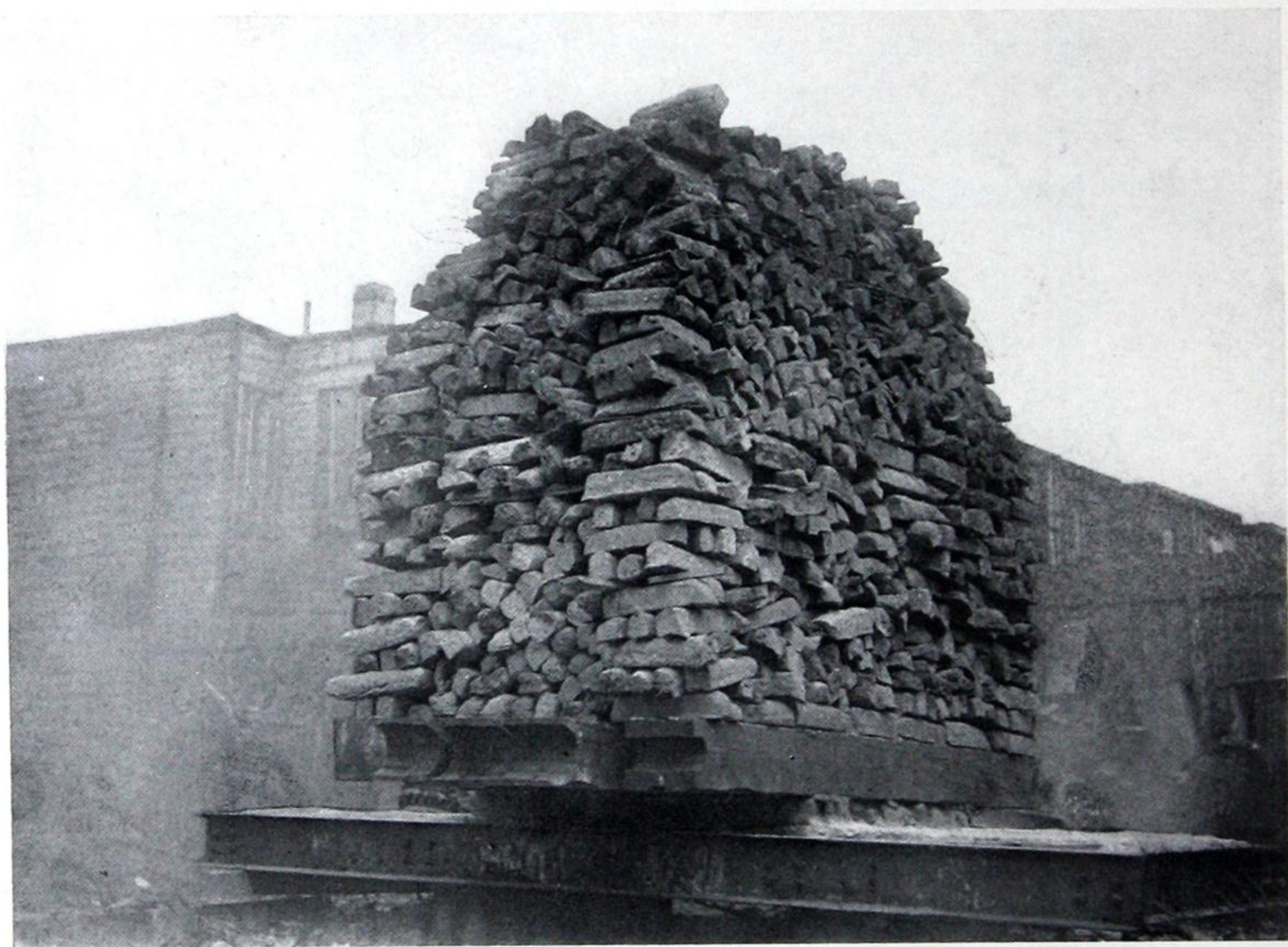
(Signed) ROBERT W. BOYD

Dated July 8, 1910.



System H

THE need of more warehouse facilities, especially in the lower west side of the Borough of Manhattan, induced us to make a test on System H, that a fabric might be available for use where live loads were to be in excess of 150 pounds, and this photograph, showing the loaded slab, will doubtless be interesting to all and surprising to those unacquainted with the great strength of concrete reinforced with cold drawn steel.



4000 lbs. Per Square Foot in this Test of Triangle Mesh Reinforcement

Possible arching action of the load was minimized by the use of beams resting on the first layer of pig iron, which distributed the load.

The final deflection after standing two days was $1\frac{1}{8}$ inches.

Span, 6 feet.

Slab, 4 inches.

1, 2, 5 Cinder Concrete.

Reinforcement Triangle Mesh, Style 24.

Approved by Building Department of New York City for 400 pounds live load per square foot.

Price less than $1\frac{1}{2}$ cents per square foot in car load lots.

THE BUREAU OF BUILDINGS

FOR THE BOROUGH OF MANHATTAN

220 FOURTH AVENUE A.S.--LC
S.W. CORNER 18TH ST.

RUDOLPH P. MILLER,
SUPERINTENDENT.

New York City. July 27, 1910.

Mr. Robert W. Boyd,

105 West 40th Street, City.

Dear Sir:

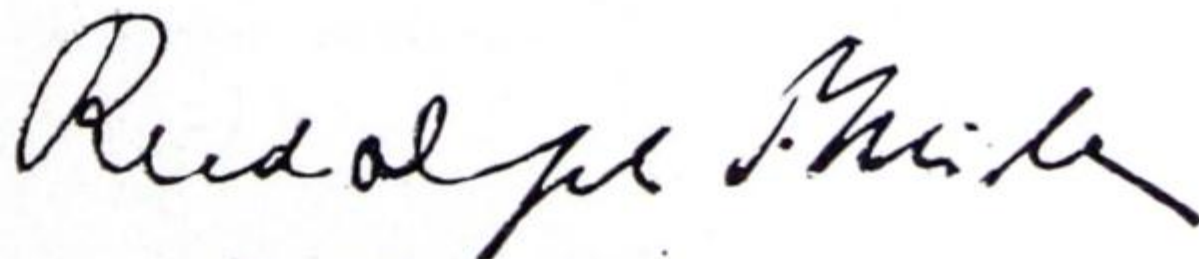
As a result of the loading tests made June 18, July 1 and July 7, 1910, at the yards of the Chas. A. Lefferts Iron Foundry, corner Second Avenue and Eleventh Street, Brooklyn, The American Steel and Wire Company's form of reinforced concrete floor construction is hereby approved for general use in the Borough of Manhattan as a fireproof construction, viz:

Span 7' 6", floor slab 4" thick of cinder concrete, 1 part Portland cement, 2 parts sand and 5 parts cinders, style #4 triangular mesh reinforcement, #6 wires 4" on centres, for a working load of 95 lbs. per square foot.

Span 6' 0", floor slab 4" thick, of cinder concrete, 1 part Portland cement, 2 parts sand and 5 parts cinders, style #24 triangular mesh reinforcement, #4 wires 4" on centres, for a working load of 400 lbs. per square foot.

In case the materials and workmanship in actual practice fall below the standard established in the test construction, this permit will be at once suspended or revoked.

Yours truly,



Superintendent.



TMH.JAH

BUREAU OF BUILDINGS
JOHN THATCHER SUPERINTENDENT
WILLIAM A. COAKLEY, ASSISTANT SUPERINTENDENT

The City of New York
Office of the
President of the Borough of Brooklyn

Borough Hall
Brooklyn

July 21, 1910

American Steel and Wire Company,

105 West 40th street, N. Y.

Mr. Robt. W. Boyd,
Consulting Engineer.

Dear Sir:

As a result of the load test made on 4" cinder concrete slab on July 1st and 7th, 1910 at Brooklyn, N. Y., your form of reinforced cinder concrete floor construction for spans not exceeding 6'0", reinforced with the American Steel and Wire Company's Triangular Mesh Reinforcement style #24 (#4 wires 4" C. to C.) is hereby approved for general use in the Borough of Brooklyn, as fireproof construction, for live bonds up to 400# per sq. ft. provided that the construction is in all cases as tested.

In case the materials or workmanship in actual practice fall below the standard established in the test construction, this approval will be at once suspended or revoked.

This approval is granted on the further condition that you will be responsible for the proper installation of this construction, and that the system will be installed by you, or your accepted representative.

You are also requested to send samples of triangular mesh of the different styles used in fire-proof floor construction to this office at your earliest convenience.

Yours truly,

John Thatcher
Superintendent.

THE CITY OF NEW YORK
Office of
BUREAU OF BUILDINGS,
BOROUGH OF THE BRONX
Municipal Building - THIRD AVE. & 177TH ST.

September 6th, 1910.

Robert W. Boyd, Esq.,
Consulting Engineer,
105 West 40th Street, City.

Sir:

The American Steel and Wire Company's four-inch cinder concrete slab on a six-foot span, reinforced with the American Steel and Wire Company's triangular mesh reinforcement, Style #24, has been approved for use in this Borough with a live load on same not exceeding 400 pounds per square foot.

Respectfully,

James A. Henderson

Superintendent of Buildings,
Borough of The Bronx.

BUREAU OF BUILDINGS,BOROUGH OF RICHMOND,
NEW BRIGHTON.JOHN SEATON,
SUPERINTENDENT*New York City,* July 19th, 1910.

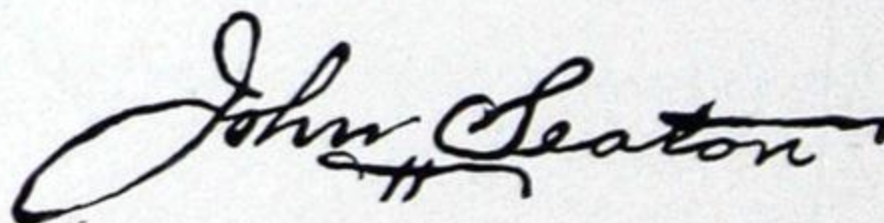
Mr. Robert W. Boyd,

105 West 40th St., New York.

Dear Sir:

Replying to your communication of June 24th I beg to advise that your 7'-0" cinder concrete arch 4 inches in thickness reinforced with triangular mesh style No. 26 is approved for use in this Borough and also 4 inch cinder concrete slab on a 6'-0" span reinforced with American steel and Wire Co's triangular mesh reinforcement style No. 24 for a live load up to 400 pounds per square foot.

Yours respectfully,

Superintendent of Buildings,
Borough of Richmond.

THE BUREAU OF BUILDINGS

FOR THE BOROUGH OF MANHATTAN

220 FOURTH AVENUE

S. W. CORNER 18TH ST.

RUDOLPH P. MILLER,
SUPERINTENDENT.

AS:D. New York City 16 August 1910

AMERICAN STEEL AND WIRE COMPANY,

30 Church Street, City.

Gentlemen:

I am in receipt of your letter of August 12,
with eight prints of the American Steel and Wire floor
construction.

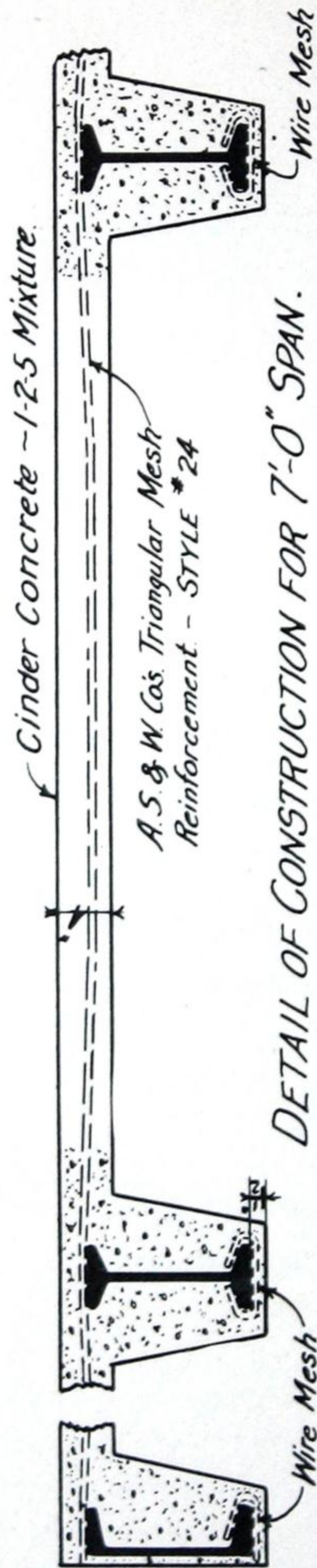
These prints agree with the records of tests
made under the jurisdiction of this Bureau and are as
recorded.

Yours truly,

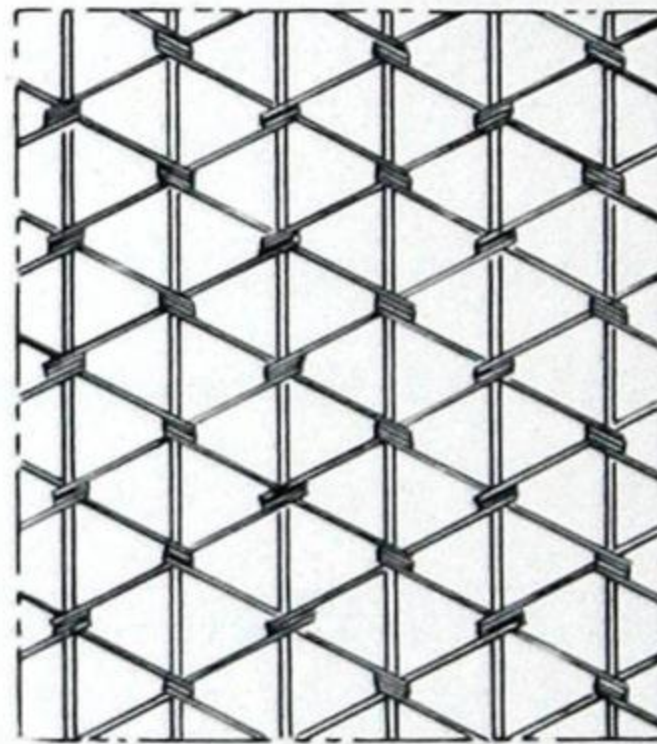
A handwritten signature in dark ink, appearing to read 'Rudolph P. Miller', written in a cursive style.

Superintendent.

TRIANGLE MESH SYSTEM I



DETAIL OF CONSTRUCTION FOR 7'-0" SPAN.



Style #24 —
Longitudinal members #4 gauge wire
4" o.c., sectional area per ft. of width
.119 sq. inches. Cross wires #12 gauge,
4" mesh. Total cross sectional area
per ft. of width .142 sq. inches.

Note.

This system was tested Dec. 23rd 1910
for the Bureau of Buildings of the
Five Boroughs of Greater New York and
approved Dec. 27th 1910 for live loads up
to and including 300^{lb} per sq. ft. when
constructed as tested.

DETAIL OF REINFORCEMENT.

FIREPROOF FLOOR OF CONCRETE
REINFORCED WITH TRIANGULAR MESH REINFORCEMENT

MADE BY

AMERICAN STEEL & WIRE COMPANY
NEW YORK CHICAGO.

System I

Report of Load Test on a 4-Inch Cinder Concrete Slab, 7-Foot Span, Reinforced with American Steel and Wire Company's Triangle Mesh Reinforcement, Style No. 24

THE load test herein described was made in the yard of the Charles A. Lefferts Iron Foundry, corner of Second Avenue and 11th Street, Borough of Brooklyn, on December 22 and 23, 1910.

The slab was constructed of cinder concrete mixed in the proportions of one part Portland cement, two parts sand and five parts cinders. The slab was four inches in thickness and had a span of seven feet center to center of supporting beams. The reinforcement consisted of Style No. 24, American Steel and Wire Company's Triangle Mesh Reinforcement. The cement was Vulcanite; the sand, yellow Cow Bay sand of good quality, and the coarser aggregate, steam coal cinders. The construction of the test slab is generally indicated on the blue print herewith attached.

The installation of the test slab took place on October 24, and was witnessed by representatives from the Bureaus of Buildings of Manhattan, Brooklyn and the Bronx.

On December 22, when the test slab was fifty-nine days old, the loading was begun. The method of loading was as follows: On top of the slab a layer of cinders about one inch in thickness was placed upon which was laid one tier of pig iron, care being taken that none of the pigs projected over the supporting steel beams. On top of this layer of pig iron were placed more cinders to form an even bed for five 10 x 12 timbers about 10 feet 6 inches in length, laid on flat, side by side across the slab, parallel with the supporting beams. The timbers as placed were about 5 inches apart. The end timber in each case was placed so that the outside edge was immediately over the inside flange of the supporting beam. Deflections were read on scales secured to the edges of the slab at the center, by means of strings stretched taut over the supporting beams beyond the edges of the slab. The pig iron was weighed in lots of about 1,450 pounds on a small platform scale near the test slab. A portion of the pig iron load, amounting to about 73,000 pounds, was placed on the middle of the platform of 10 x 12 timbers, the area covered being about 6 feet 8 inches by 6 feet. This pile was about 7 feet in height. The remainder of the load was uniformly distributed over the ends of the 10 x 12 timbers where they projected beyond the main pile of pig iron. The purpose of loading the slab in this way was to minimize the labor of loading and to remove, as far as possible, the element of danger to the workmen, during the latter part of the loading, due to sudden failure of the slab.

The loading was begun about 10 a. m., December 22. At 5 p. m. 58,288 pounds, or approximately 2000 pounds per square foot, had been placed on the slab. The deflection was approximately $\frac{5}{8}$ inch. The loading was then suspended until 10.15 a. m., December 23. Before the loading was resumed it was noted the deflection had increased during the night to approximately one inch. The loading proceeded until 1 p. m. and was then discontinued. The total load placed on the slab was 87,815 pounds or 3,010 pounds per square foot. At the conclusion of the loading the slab showed a deflection of $1\frac{9}{16}$ inches. One large crack had opened up in the lower surface across the slab at the middle and large cracks were noted in the upper surface just inside of the supports. While the slab did not fail, the loading was discontinued, since it seemed unwise to subject the workmen to unnecessary danger in the event of sudden failure. The load was allowed to remain on the slab.

The deflections noted were as follows:

- 25,764 pounds, or about 880 pounds per square foot, $\frac{1}{8}$ inch.
- 43,574 pounds, or about 1,490 pounds per square foot, $\frac{1}{4}$ inch.
- 48,025 pounds, or about 1,650 pounds per square foot, $\frac{1}{2}$ inch.
- 53,903 pounds, or about 1,850 pounds per square foot, $\frac{5}{8}$ inch.
- 73,061 pounds, or about 2,500 pounds per square foot, $1\frac{1}{4}$ inches.
- 84,855 pounds, or about 2,900 pounds per square foot, $1\frac{1}{2}$ inches.
- 87,815 pounds, or about 3,010 pounds per square foot, $1\frac{9}{16}$ inches.

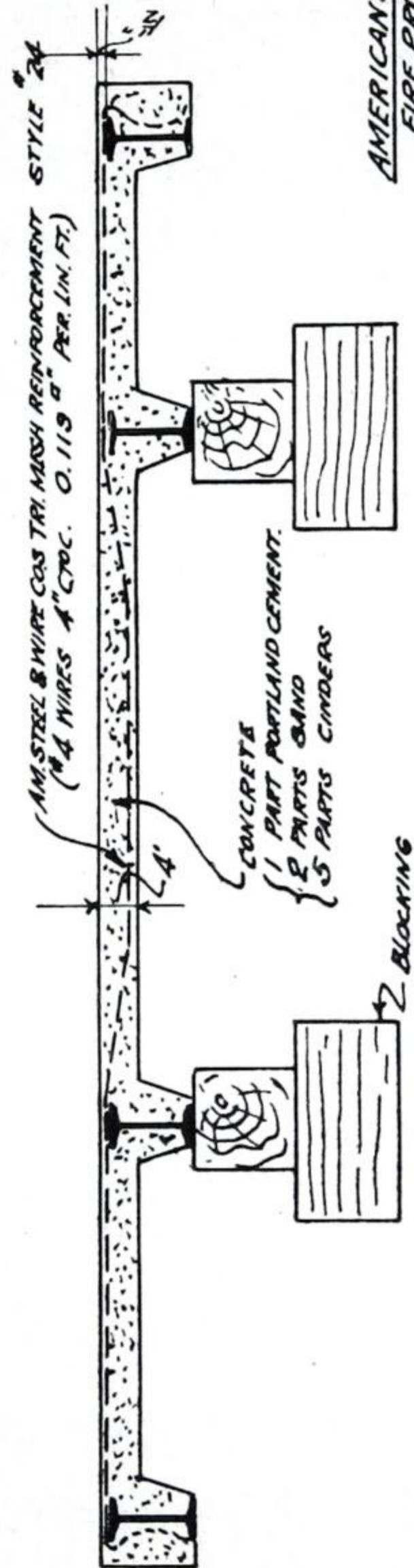
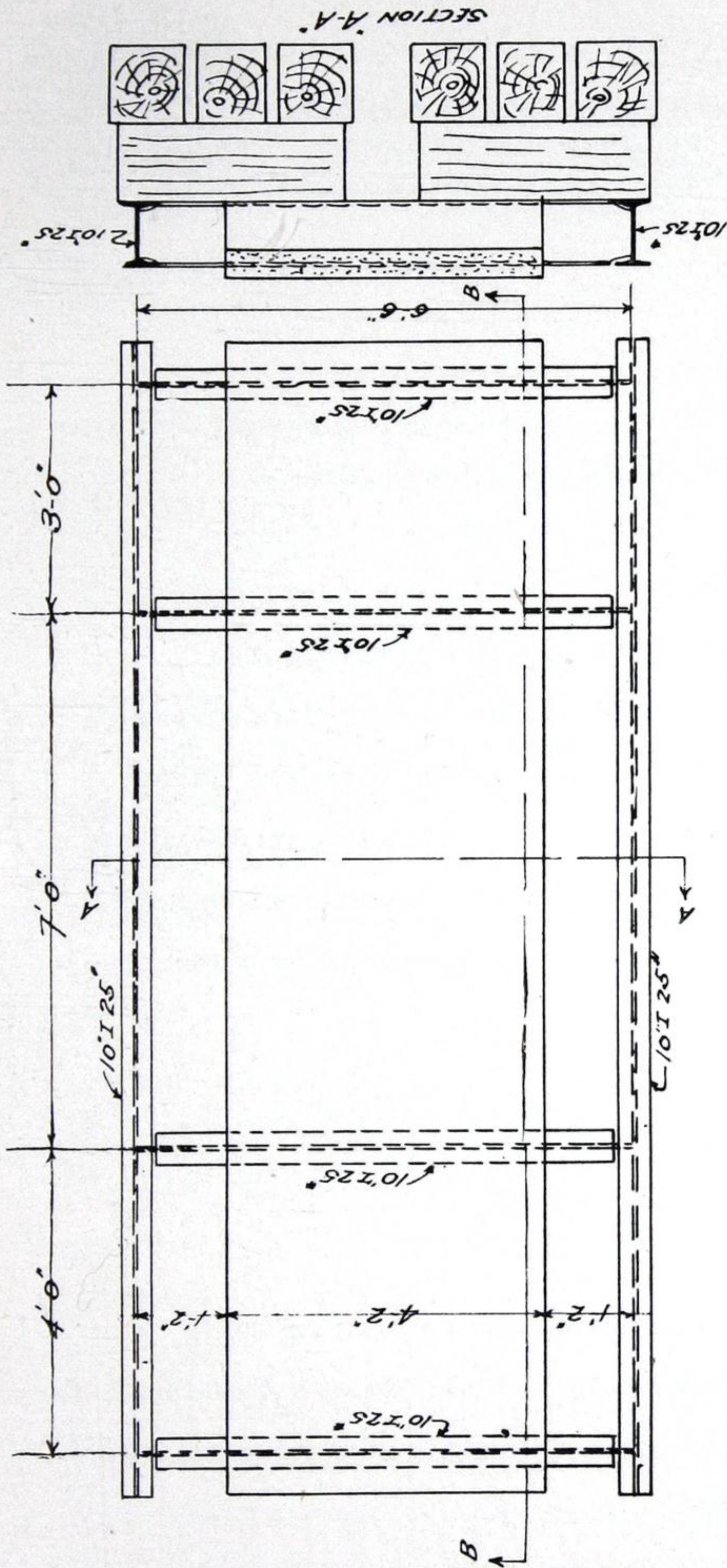
At some time during the night of December 23-24, the slab failed under the load. Failure appears to have taken place by a combination of bending and shearing, the slab being completely broken at the middle, while at the same time it was almost completely sheared off just inside of the supporting beams.

The loading of the test slab was witnessed by A. Schwartz, of the Bureau of Buildings, Borough of Manhattan; Thomas Heatley, of the Bureau of Buildings, Borough of the Bronx; Daniel Campbell, Bureau of Buildings, Borough of Queens; P. T. Coons, representing the American Steel and Wire Company; also Robert W. Boyd, consulting engineer, 105 West 40th Street, New York, under whose supervision the test was made.

(Signed) ROBERT W. BOYD

Dated December 27, 1910.

TEST #4



AMERICAN STEEL & WIRE CO.
FIRE PROOF FLOOR SYSTEM

SECTION B-B

ROBERT W. BOYD
CONSULTING ENGINEER
105 W. 40TH ST. N.Y.C.

OCTOBER 15TH 1910.

SCALE 1/2" = 1'-0"

THE BUREAU OF BUILDINGS

FOR THE BOROUGH OF MANHATTAN

220 FOURTH AVENUE

AS-LC

S W CORNER 18TH ST

RUDOLPH P. MILLER
SUPERINTENDENT

NEW YORK CITY Dec. 27, 1910

Mr. Robert W. Boyd,

105 West 40th Street, City.

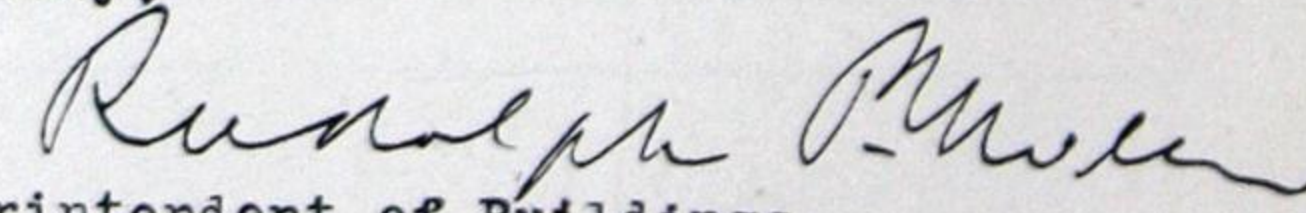
Dear Sir;

As a result of the loading tests made December 22 and 23, 1910, at the yards of the Chas. A. Lefferts Iron Foundry, corner Second Avenue and Eleventh Street, Brooklyn, the American Steel and Wire Company's form of reinforced concrete floor construction is hereby approved for general use in the Borough of Manhattan as a fireproof construction, viz:

Span 7'0", 1-2-5 cinder concrete slab 4" thick, reinforced with the American Steel and Wire Company's triangular mesh, style #24, #4 carrying wires 4" on centres, for a working load of 300 lbs. per square foot.

In case the materials and workmanship in actual practice fall below the standard established in the test construction, this permit will at once be suspended or revoked.

Yours truly,


Superintendent of Buildings.



BUREAU OF BUILDINGS
JOHN THATCHER, SUPERINTENDENT
WILLIAM A. COAKLEY, ASSISTANT SUPERINTENDENT

MTD/JAH

The City of New York
Office of the
President of the Borough of Brooklyn

Borough Hall
Brooklyn January 3rd, 1910

American Steel & Wire Company,
Mr. Robt.W.Boyd, Consulting Engineer,
105 West 40th Street, N.Y.

Dear Sir:-

As a result of the load test made on a 4" cinder concrete slab, on December 22nd and 23rd, 1910, at Brooklyn, N.Y., your form of reinforced cinder concrete floor construction for 7'0" span, reinforced with the American Steel & Wire Company's Triangular Mesh Reinforcement, style #24 (#4 wires 4" c to c) is hereby approved for general use in the Borough of Brooklyn, as fireproof construction for live loads not exceeding 300# per sq.ft., provided that the construction is in all cases as tested.

In case the material or workmanship in actual practice fall below the standard established in the test construction, this approval will be at once suspended or revoked.

This approval is given on the further condition that you will be responsible for the proper installation of this construction, and that this system will be installed by you, or your accepted representative.

Yours very truly,

John Thatcher

Superintendent.

THE CITY OF NEW YORK.

Office of

BUREAU OF BUILDINGS,

BOROUGH OF THE BRONX.

Municipal Building - THIRD AVE. & 177TH ST.

December 30th, 1910.

Mr. Robert W. Boyd, Engineer,
American Steel & Wire Co.,
105 West Fortieth Street, City.

Sir:

Your 4-inch cinder concrete slab on a 7-foot span, reinforced by the American Steel & Wire Co.'s triangular mesh reinforcement, Style 24, constructed of the same material and in the same manner as tested on December 23rd, is approved for use in this Bureau as a live load of 300 lbs. per sq. ft.

Respectfully,

James A. Henderson
Superintendent of Buildings,
Borough of The Bronx.

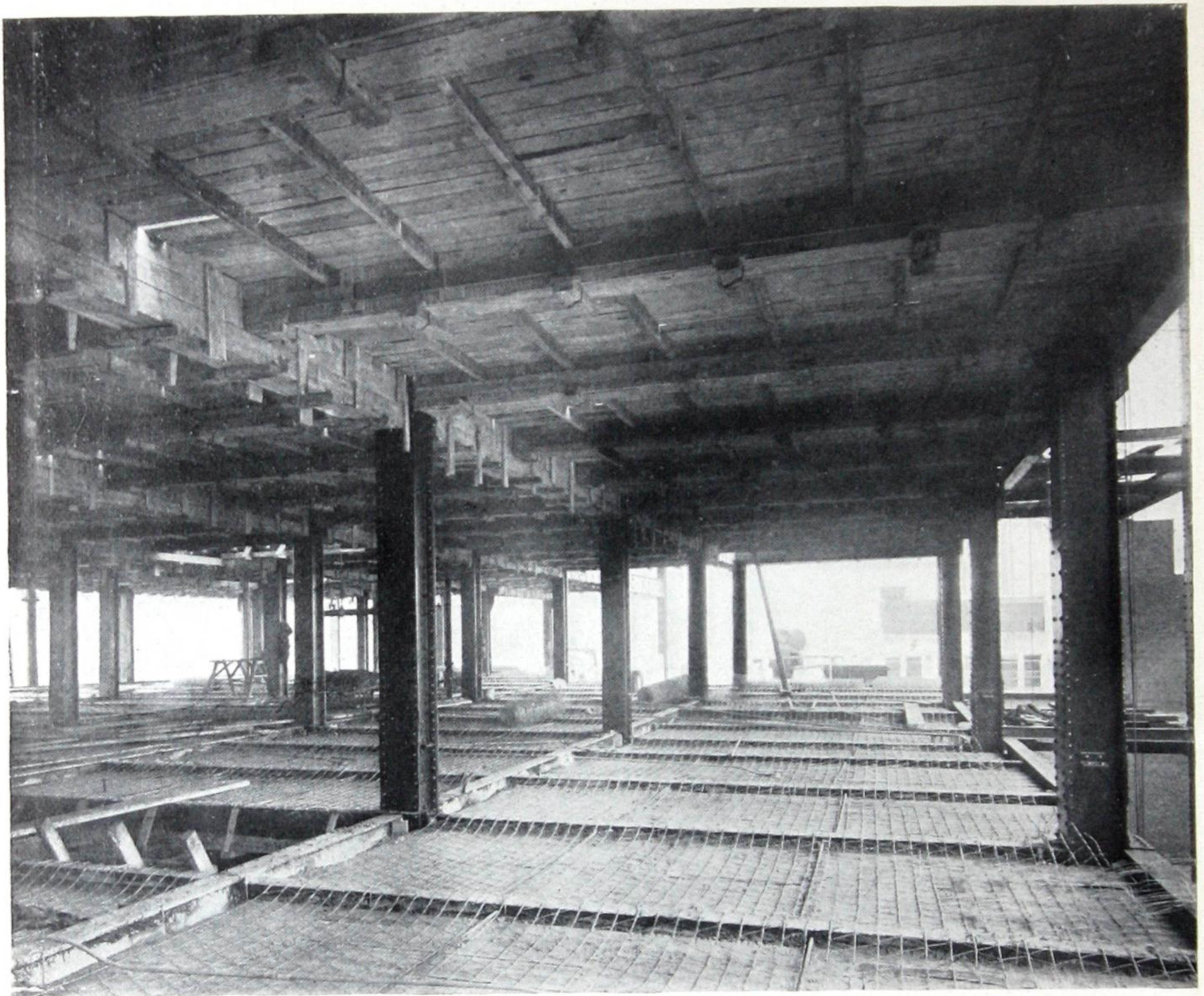


Pier 42, North River

DEPARTMENT OF DOCKS AND FERRIES, *Engineers* HENRY STEERS, INC., *Contractor*

6½-INCH SLAB 6-FOOT SPAN 500-POUND LIVE LOAD

56,000 square feet, Style 40, Triangle Mesh Reinforcement used



Stern Brothers Building, 23d Street, New York City

MAYNICKE & FRANKE, *Architects*

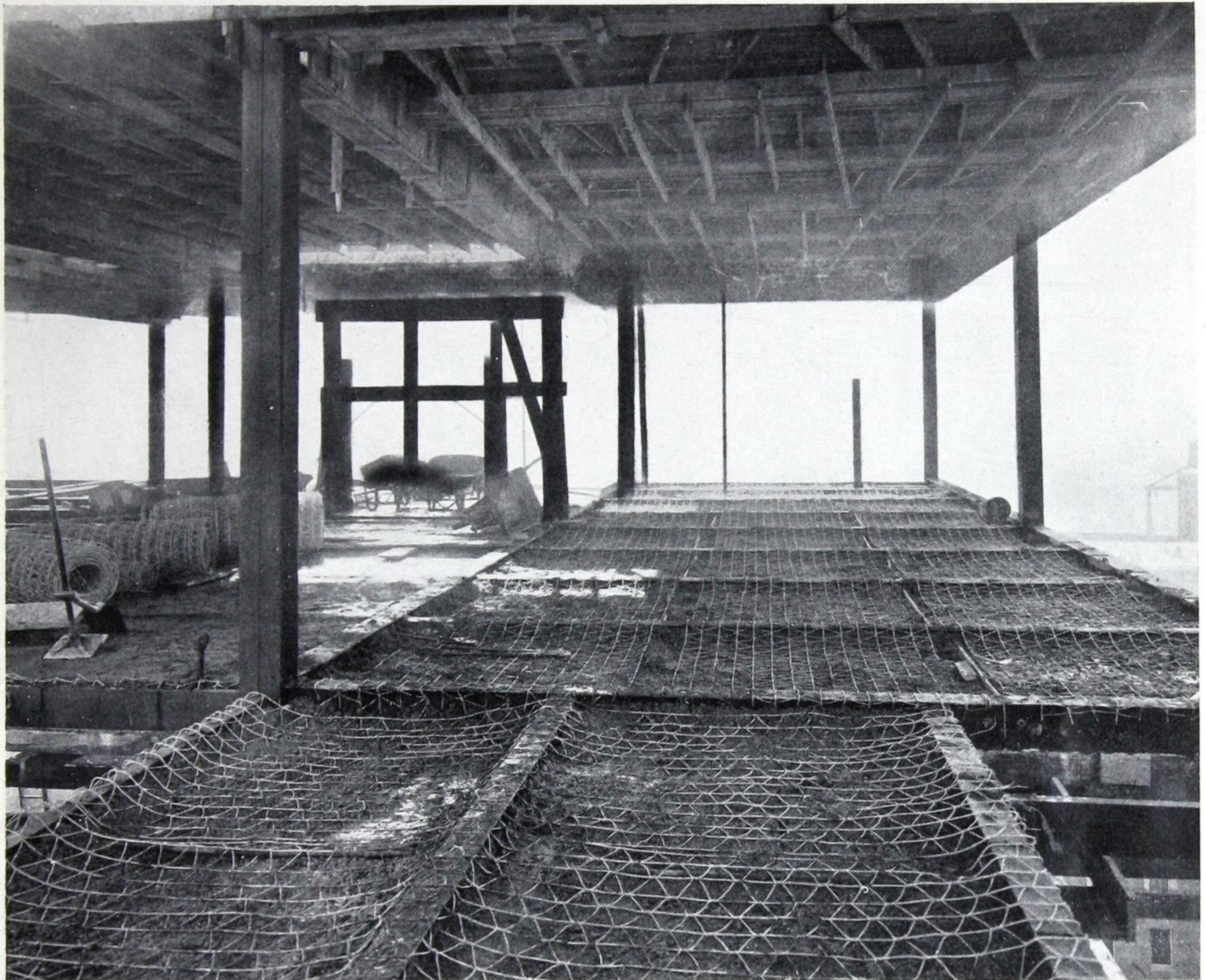
THOMPSON-STARRETT Co., *Contractors*

ROEBLING CONSTRUCTION Co., *Fireproofers*

7-foot 3-inch Span, 5-inch Slab, 150 pounds live load

230,500 square feet, Style 26, Triangle Mesh, used

System D throughout



106 7th Avenue and 206 West 17th Street

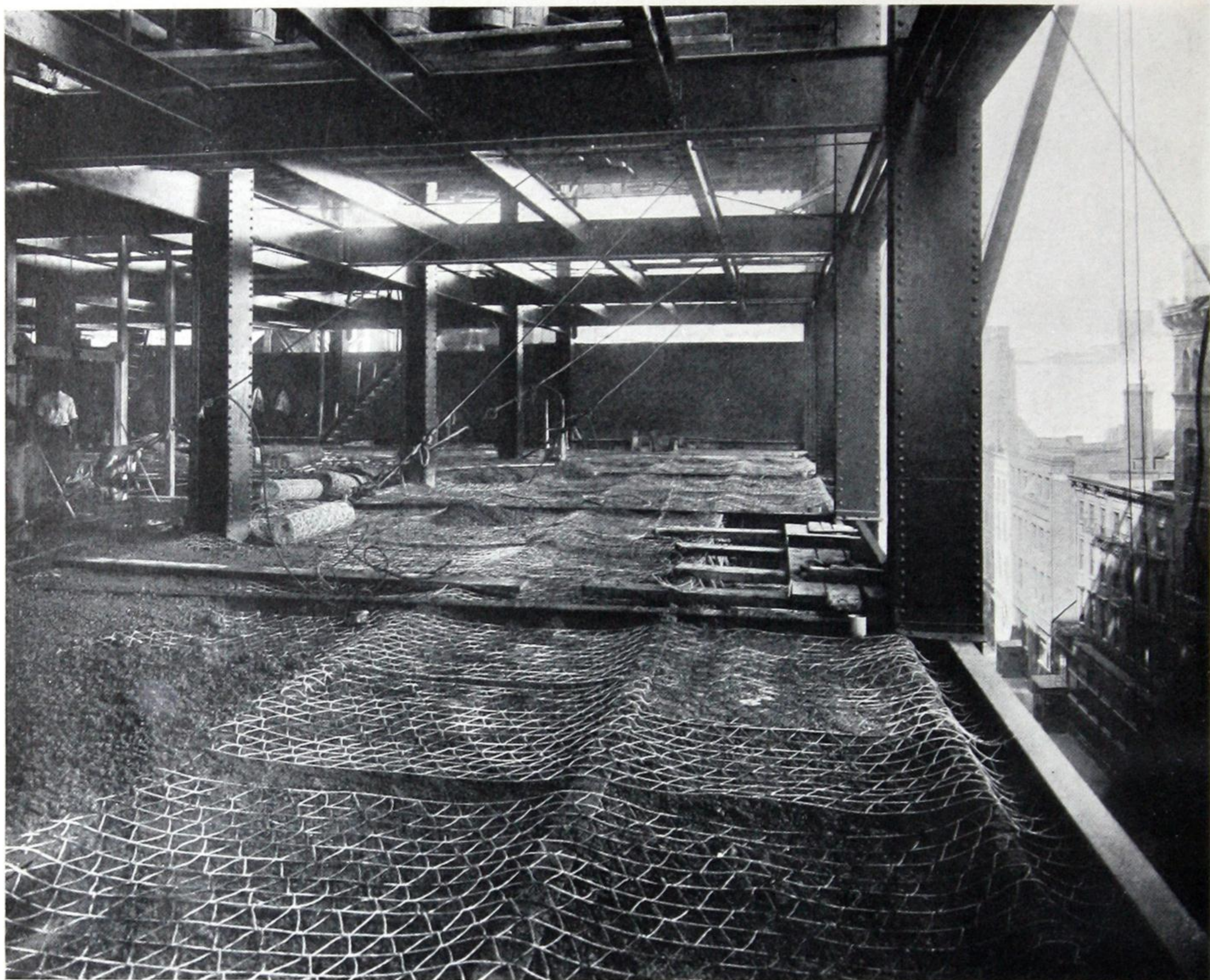
SAMUEL SASS, *Architect*

106 7TH AVENUE CO., *Contractors*

PIETROWSKI & KONOP, *Fireproofers*

71,525 square feet Triangle Mesh Reinforcement used

System B



20-26 West 22d Street

L. KORN, *Architect*

J. A. ZIMMERMAN, *Contractor*

ROEBLING CONSTRUCTION CO., *Fireproofers*

145,000 square feet Triangle Mesh Reinforcement used

System B



Bellevue Hospital Laundry, 29th Street and East River

MCKIM, MEAD & WHITE, *Architects*

J. H. PARKER, *Contractor*

A. GREENFIELD, Inc., *Fireproofers*

20,000 square feet Triangle Mesh Reinforcement used

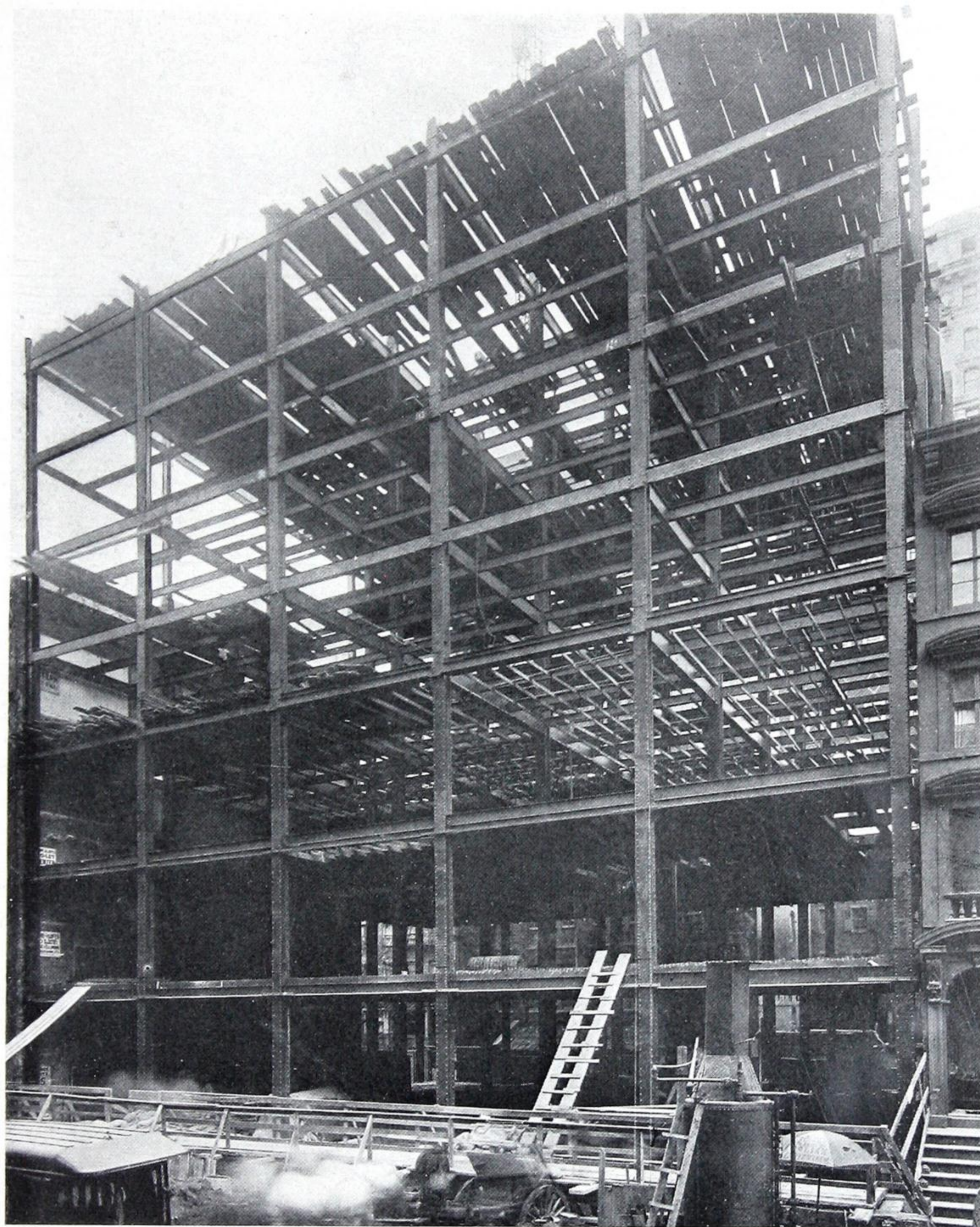


Madison Avenue and 28th Street

SCHWARTZ & GROSS, *Architects* GEORGE DOCKER CONSTRUCTION Co., *Contractors*

STANDARD ARCH COMPANY, *Fireproofers*

50,000 square feet Triangle Mesh Reinforcement used



48-52 West 25th Street

G. & E. BLUM, *Architects*

ALCOURT REALTY CO., *Contractors*

PIETROWSKI & KONOP, *Fireproofers*

92,800 square feet Triangle Mesh Reinforcement used

Systems B and D



135-139 West 26th Street

BUCHMAN & FOX, *Architects*

J. A. ZIMMERMAN, *Contractor*

PIETROWSKI & KONOP, *Fireproofers*

51,900 square feet Triangle Mesh Reinforcement used

System B



24-26 West 25th Street

F. C. ZOBEL, *Architect*

THE 25TH STREET CONSTRUCTION CO., *Contractors*

STANDARD ARCH COMPANY, *Fireproofers*

50,000 square feet Triangle Mesh Reinforcement used



20 West 17th Street

SCHWARTZ & GROSS, *Architects*

MISHKIND-FEINBERG REALTY CO., *Builders*

NATIONAL FIREPROOFING CO., *Fireproofers*

49,000 square feet Triangle Mesh Reinforcement used



Palmer-Singer Auto Factory, Astoria, L. I.

THOMAS ROWE, *Architect*

REILLY & CORRIGAN, *Contractors*

NATIONAL FIREPROOFING Co., *Fireproofers*

63,250 square feet Triangle Mesh Reinforcement used

System B



Hudson and Vestry Streets

CLINTON & RUSSELL, *Architects*

GEO. A. FULLER CO., *Contractors*

NATIONAL FIREPROOFING CO., *Fireproofers*

58,000 square feet Triangle Mesh Reinforcement used

System B



20th Street and 4th Avenue

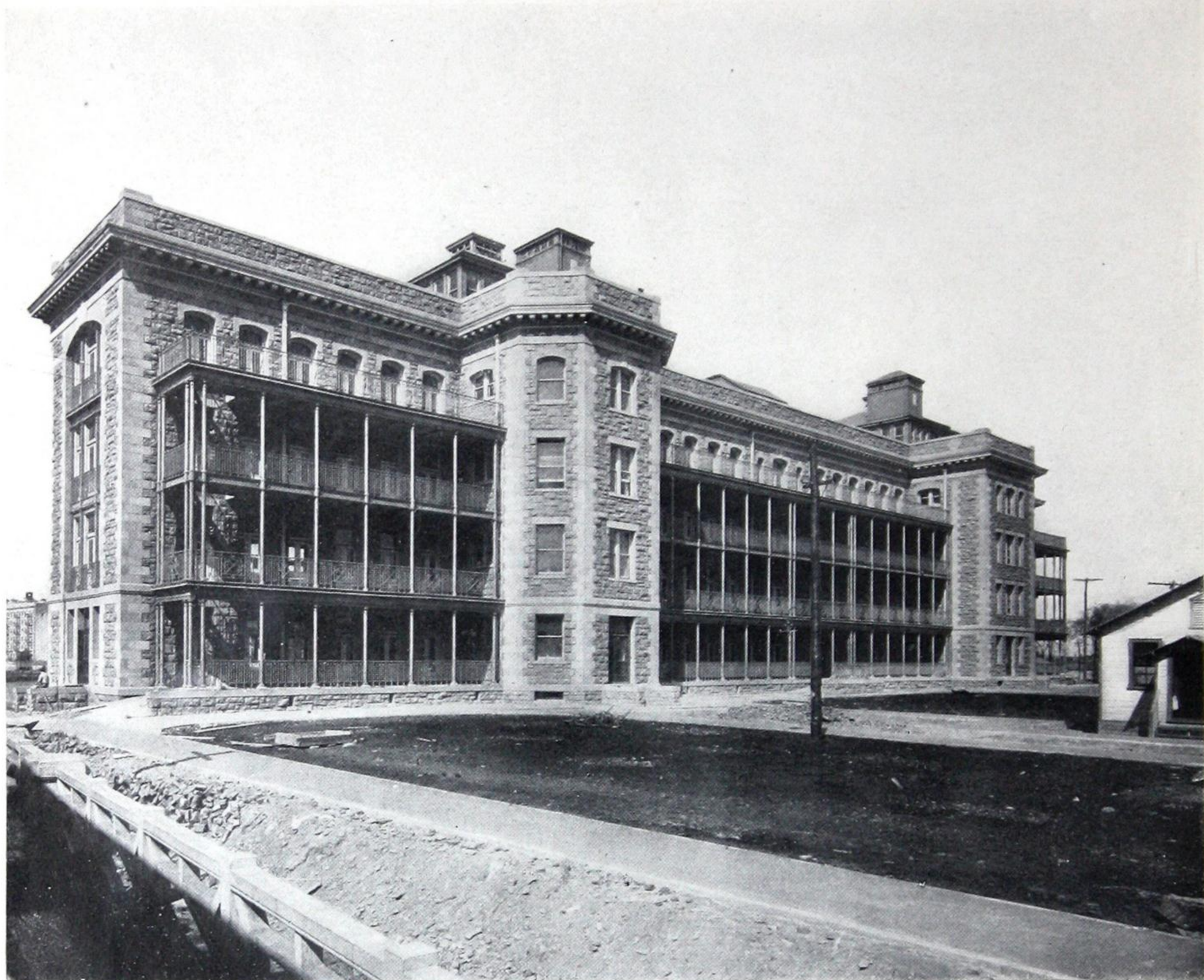
NEVILLE & BAGGE, *Architects*

CHARLES BROGAN, *Contractor*

STANDARD ARCH COMPANY, *Fireproofers*

100,000 square feet Triangle Mesh Reinforcement used

System D



Tuberculosis Infirmary, Blackwells Island, N. Y.

R. F. ALMIRALL, *Architect*

F. T. NESBIT & Co., *Contractors*

PIETROWSKI & KONOP, *Fireproofers*

40,000 square feet Triangle Mesh Reinforcement used

System D



227 West 17th Street

GEO. F. PELHAM, *Architect*

227 WEST 17TH STREET CO., *Contractor*

GUSTAV SCHARNBERGER, *Fireproofers*

40,000 square feet Triangle Mesh Reinforcement used

System B



81st Street and East End Avenue

J. B. SNOOKS' SONS, *Architects*

R. J. CASEY, *Contractor*

PIETROWSKI & KONOP, *Fireproofers*

54,200 square feet Triangle Mesh Reinforcement used

System B



Sinclair Building, 4th Avenue and 26th Street

CARRERE & HASTINGS, *Architects*

ANDREW ROBINSON, *Contractor*

A. GREENFIELD, INC., *Fireproofers*

90,000 square feet Triangle Mesh Reinforcement used



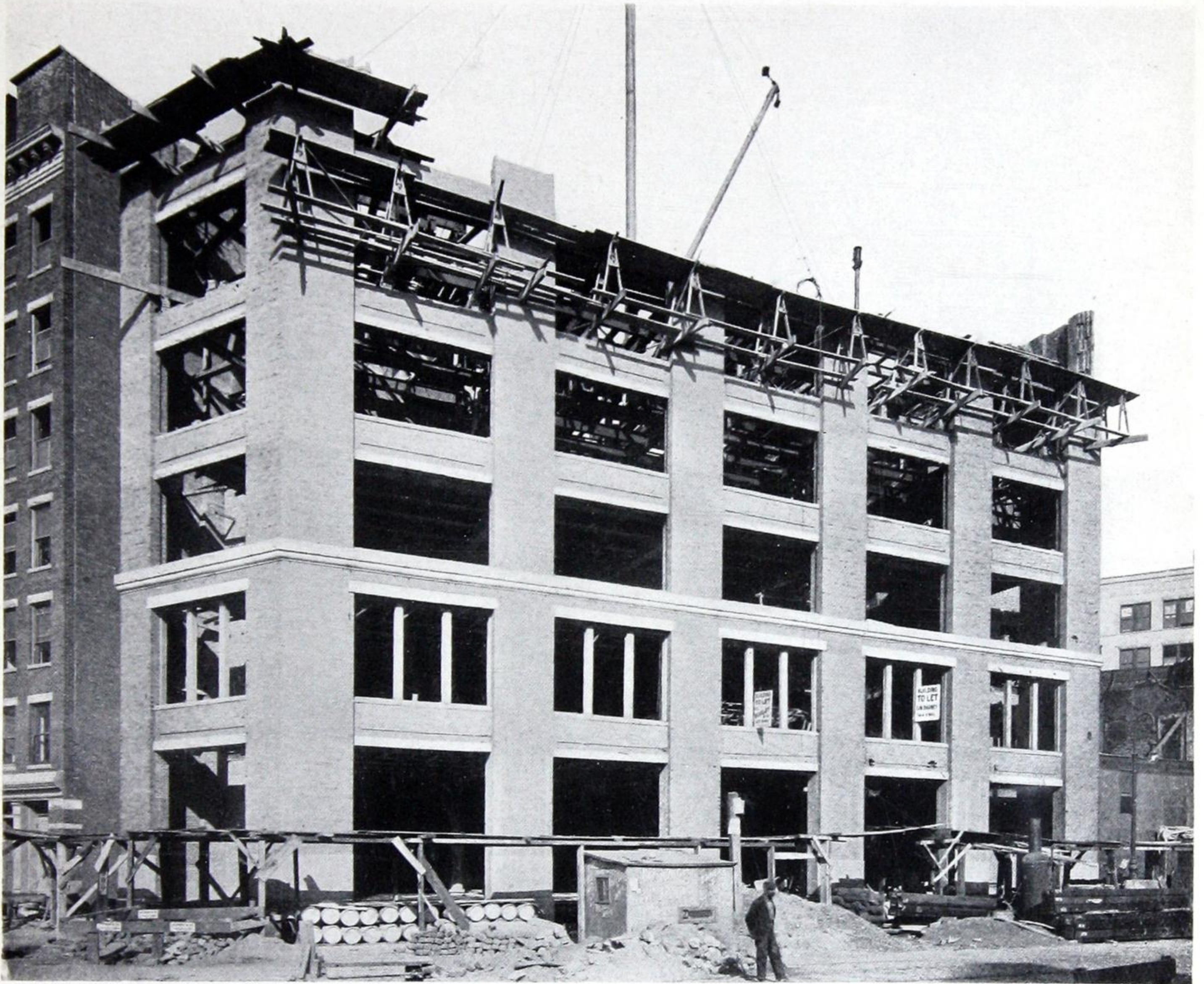
Assay Building, Wall and Nassau Streets

JAMES KNOX TAYLOR, *Supervising Architect*
Treasury Dept., Washington, D. C.

CRAMP & Co., *Contractors*

New York City

53,000 square feet Triangle Mesh Reinforcement used



Washington Street, near Canal Street

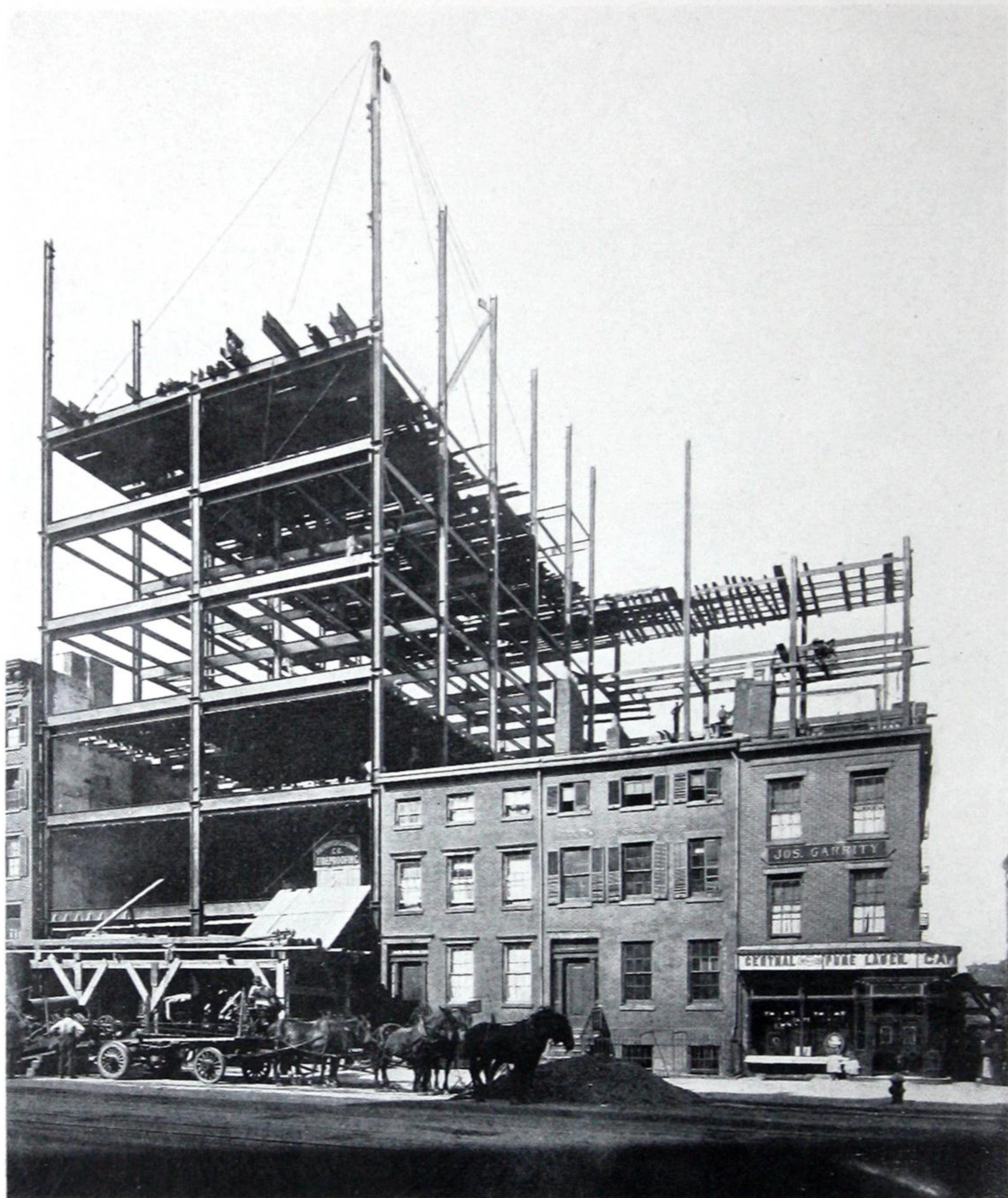
W. H. DEWAR, JR., *Architect*

GREENWICH INVESTING CO., *Contractors*

UNION FIREPROOF CONSTRUCTION CO., *Fireproofers*

40,000 square feet Triangle Mesh Reinforcement used

System H



106 7th Avenue and 206 West 17th Street

SAMUEL SASS, *Architect*

106 7TH AVENUE CO., *Contractors*

PIETROWSKI & KONOP, *Fireproofers*

71,525 square feet Triangle Mesh Reinforcement used

System B



City Theatre, 13th and 14th Streets

T. W. LAMB, *Architect*

R. J. MAHONEY, *Contractor*

PIETROWSKI & KONOP, *Fireproofers*

40,000 square feet Triangle Mesh Reinforcement used

Systems B and D



Kent Hall, Columbia University

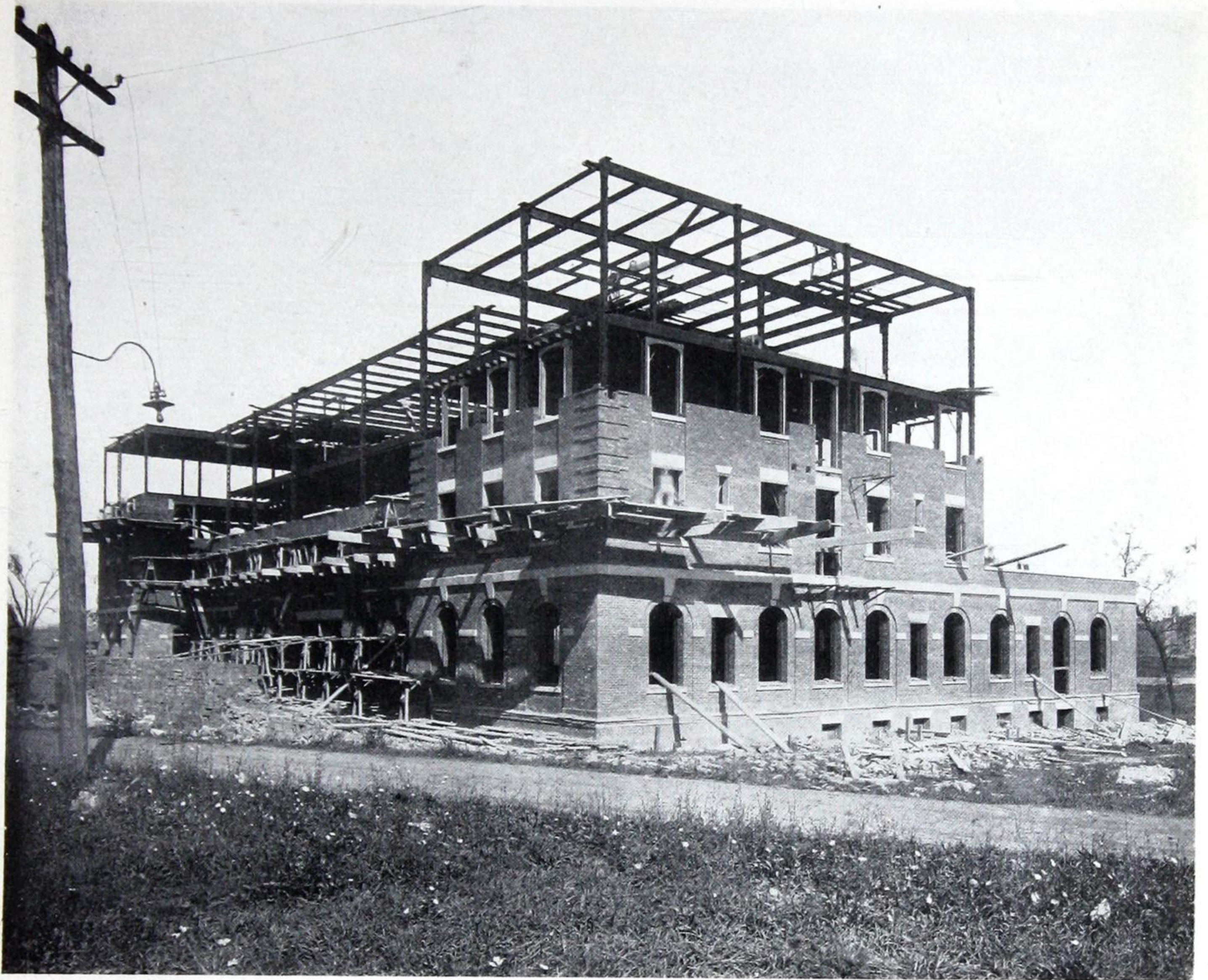
McKIM, MEAD & WHITE, *Architects*

JOHN H. PARKER, *Contractor*

NATIONAL FIREPROOFING CO., *Fireproofers*

56,350 square feet Triangle Mesh Reinforcement used

System B



Nurses' Training School, Randalls Island, N. Y.

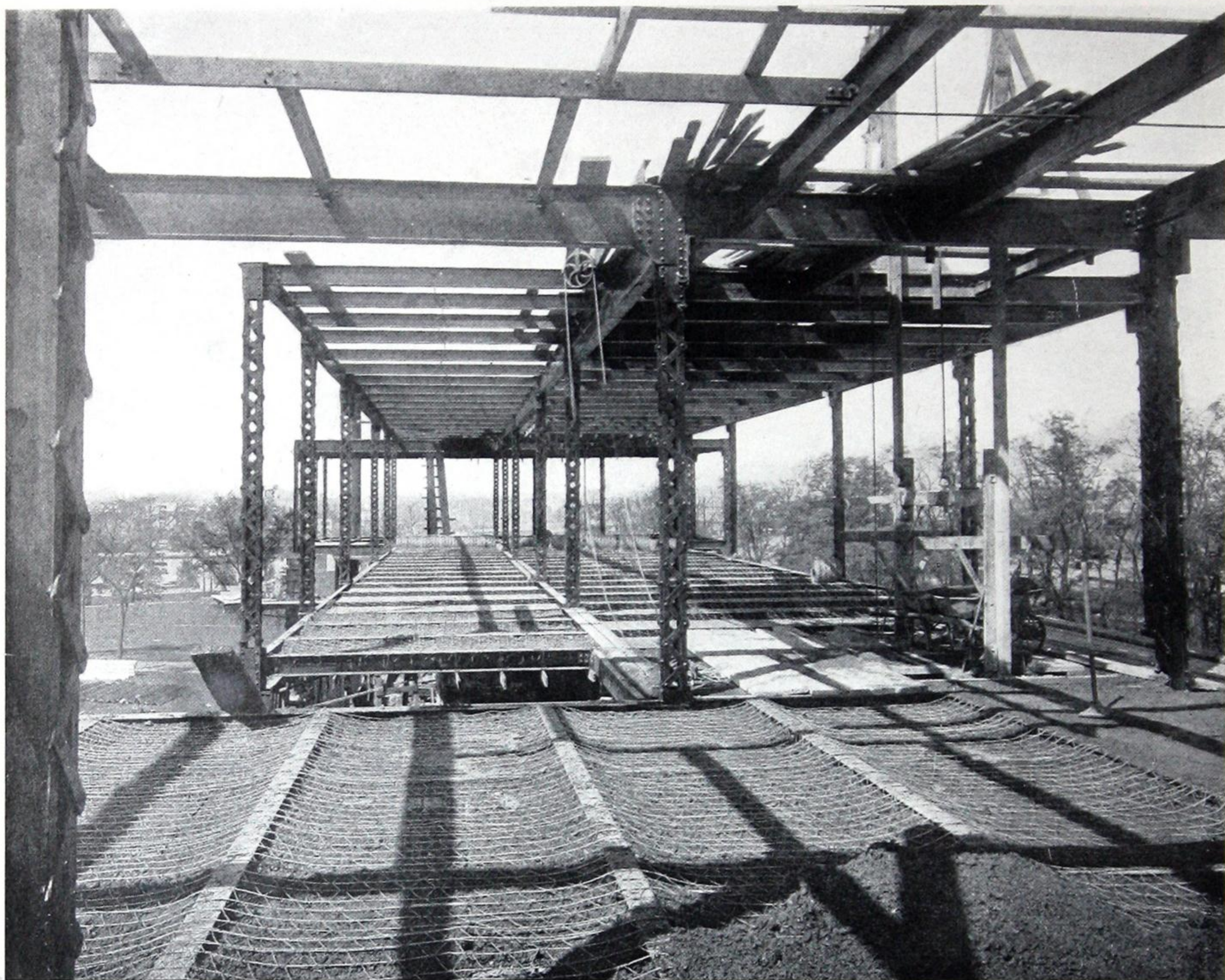
R. F. ALMIRALL, *Architect*

GEORGE HILDEBRAND, *Contractor*

PIETROWSKI & KONOP, *Fireproofers*

34,000 square feet Triangle Mesh Reinforcement used

System B



Nurses' Training School for Children, Randalls Island, N. Y.

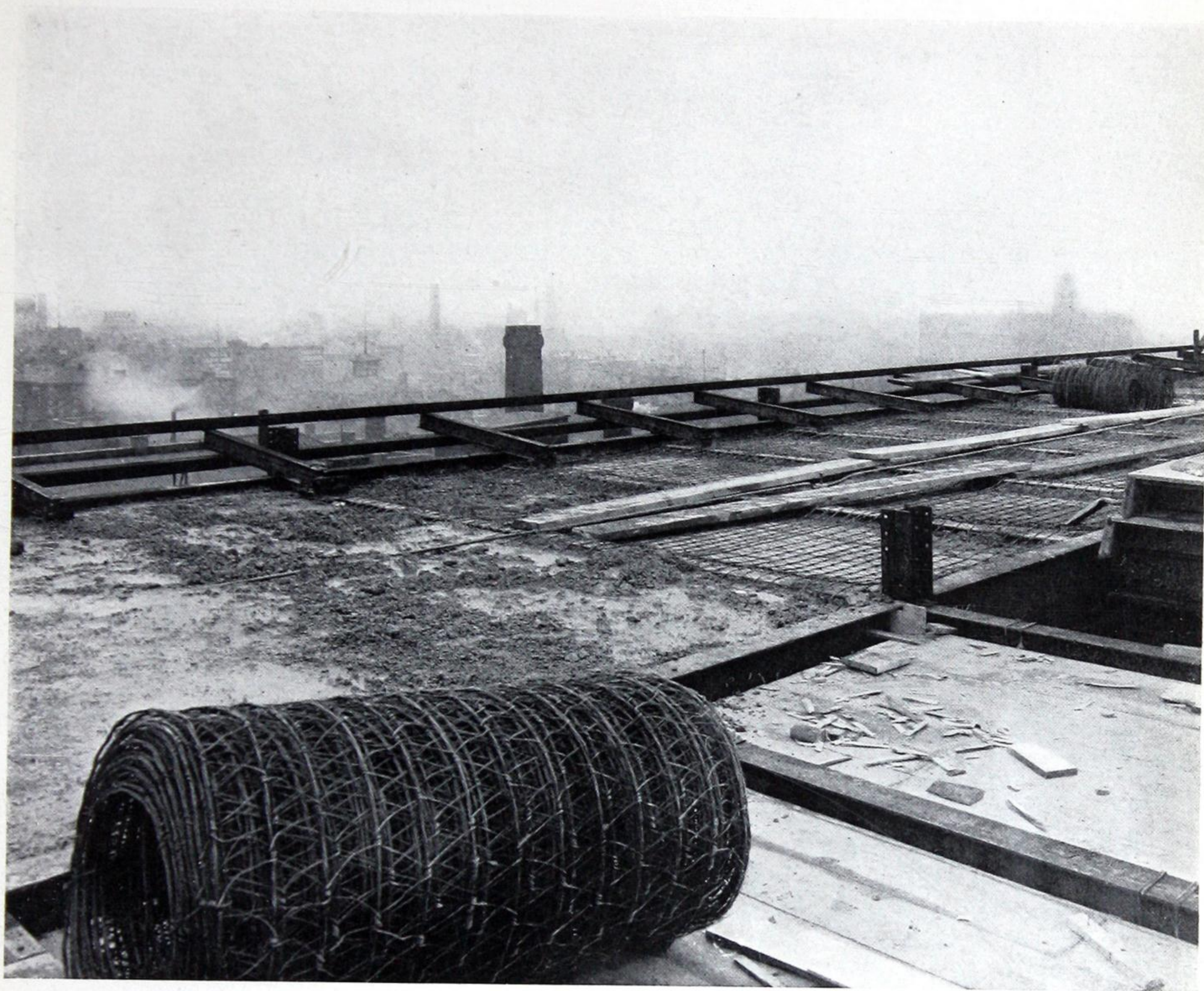
RAYMOND F. ALMIRALL, *Architect*

GEORGE HILDEBRAND, *Contractor*

PIETROWSKI & KONOP, *Fireproofers*

34,000 square feet Triangle Mesh Reinforcement used

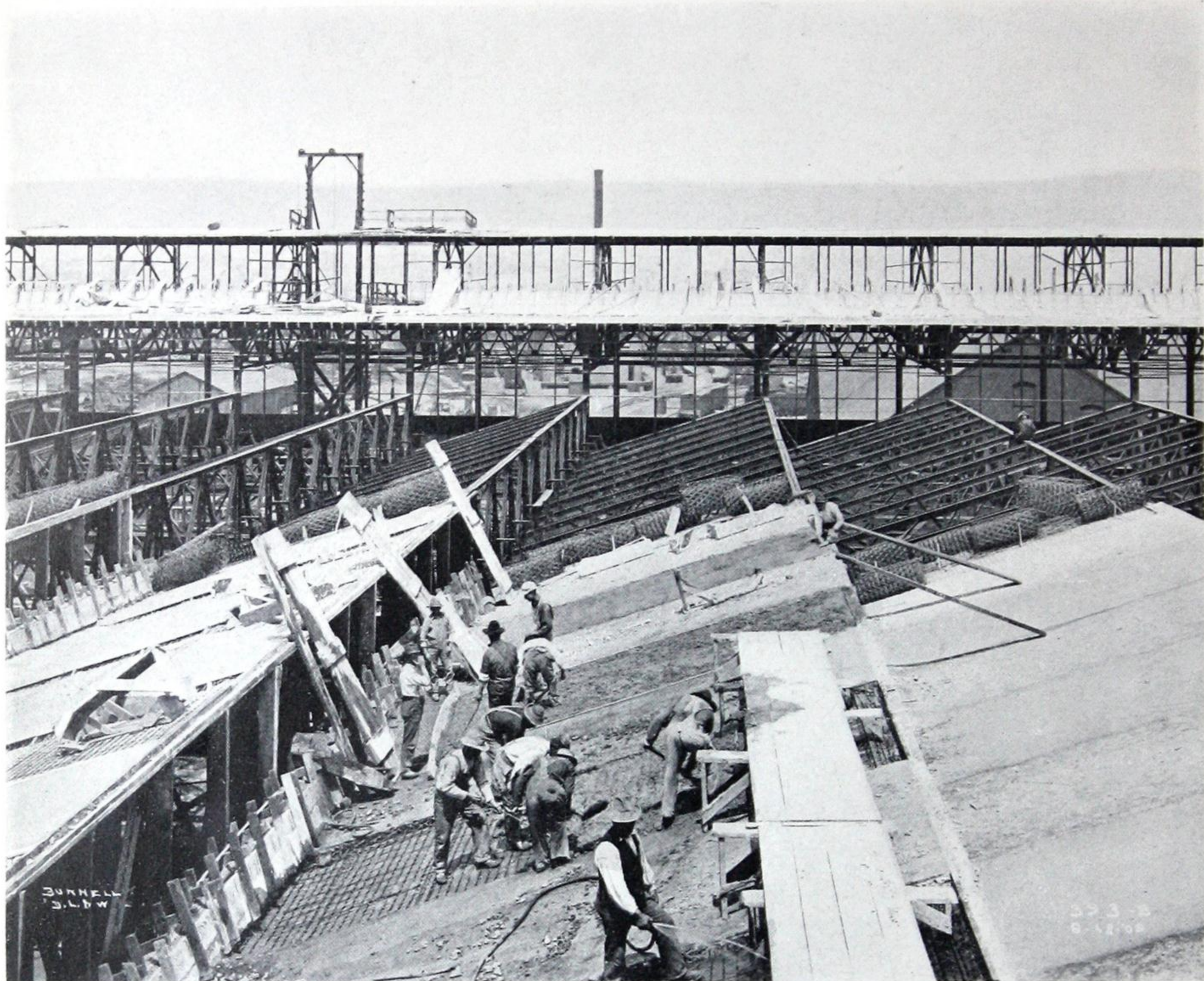
System B



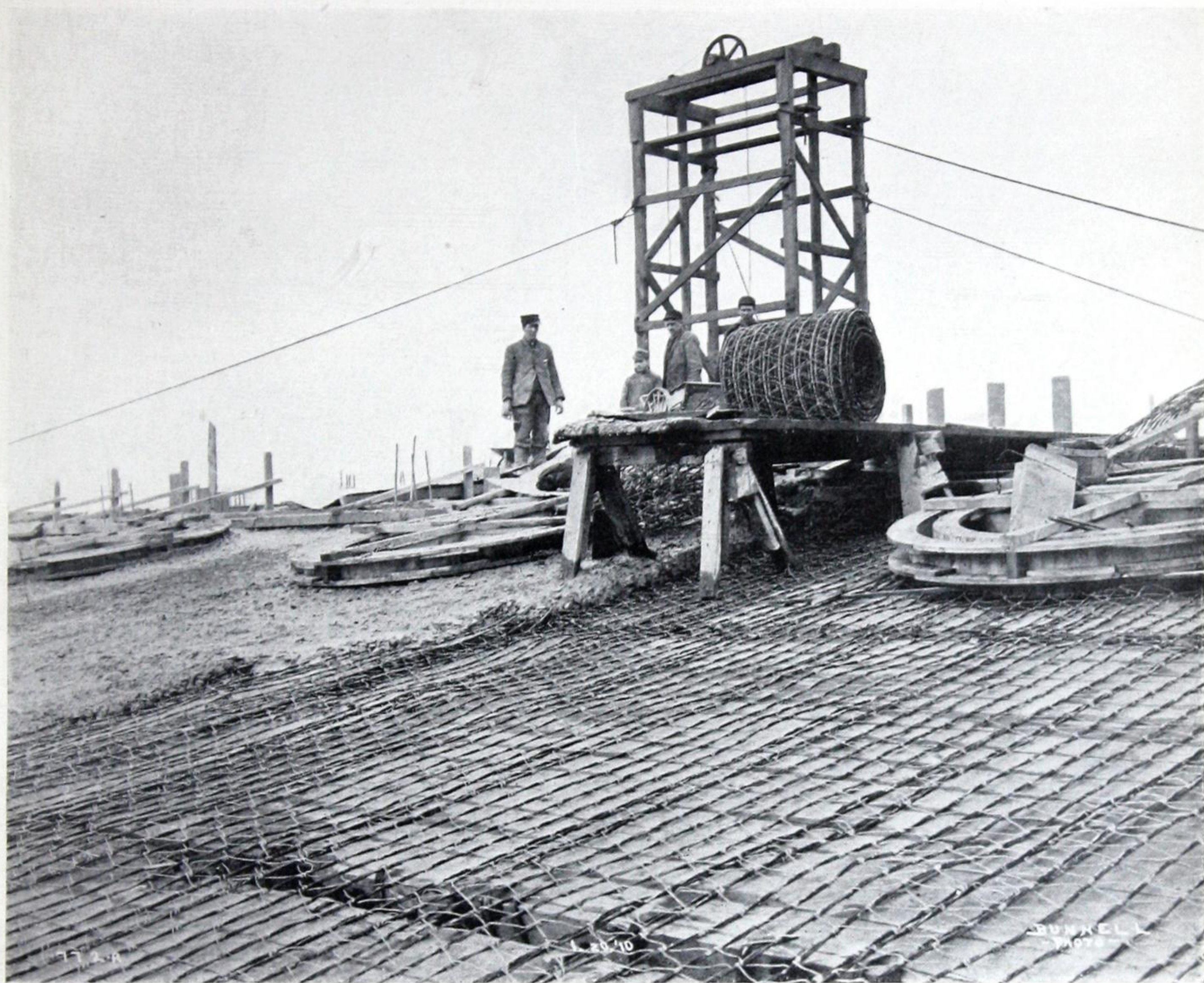
Delaware, Lackawanna & Western Shop at Buffalo

F. J. NIES, Delaware, Lackawanna & Western Railway, *Architect*

F. D. HYDE, 90 West Street, New York City, *Contractor*



**Saw-tooth Roof-Locomotive Repair Shop, Delaware, Lackawanna
& Western Railway, Scranton, Pa.**



Roof of Anchineloss Steam Plant, Delaware, Lackawanna & Western
Railway Coal Mine, Plymouth, Pa.



222-26 West 15th Street

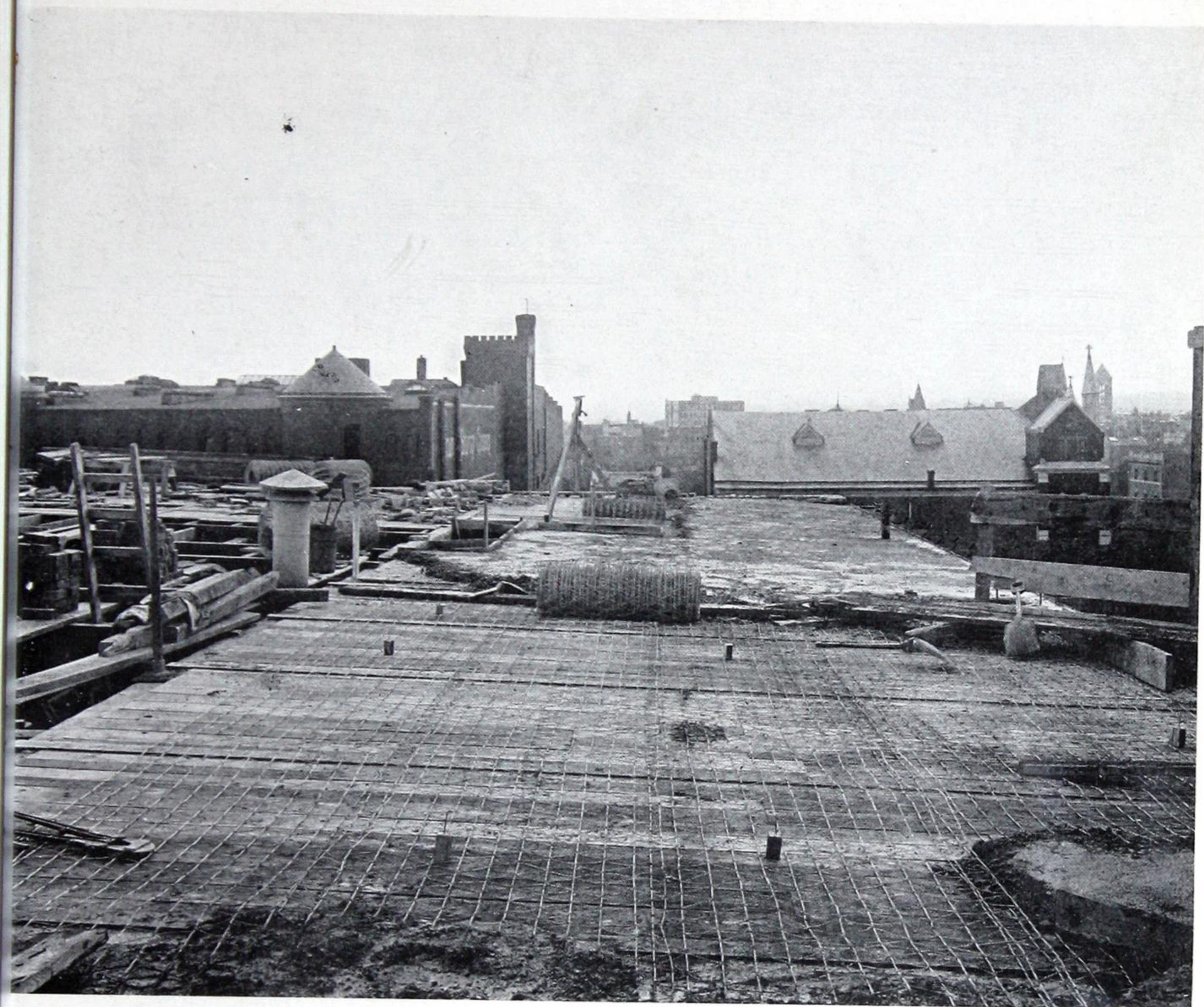
JOHN KEARNEY, *Architect*

R. H. WALSH COMPANY, *Contractor*

PIETROWSKI & KONOP, *Fireproofers*

43,700 square feet Triangle Mesh Reinforcement used

System B



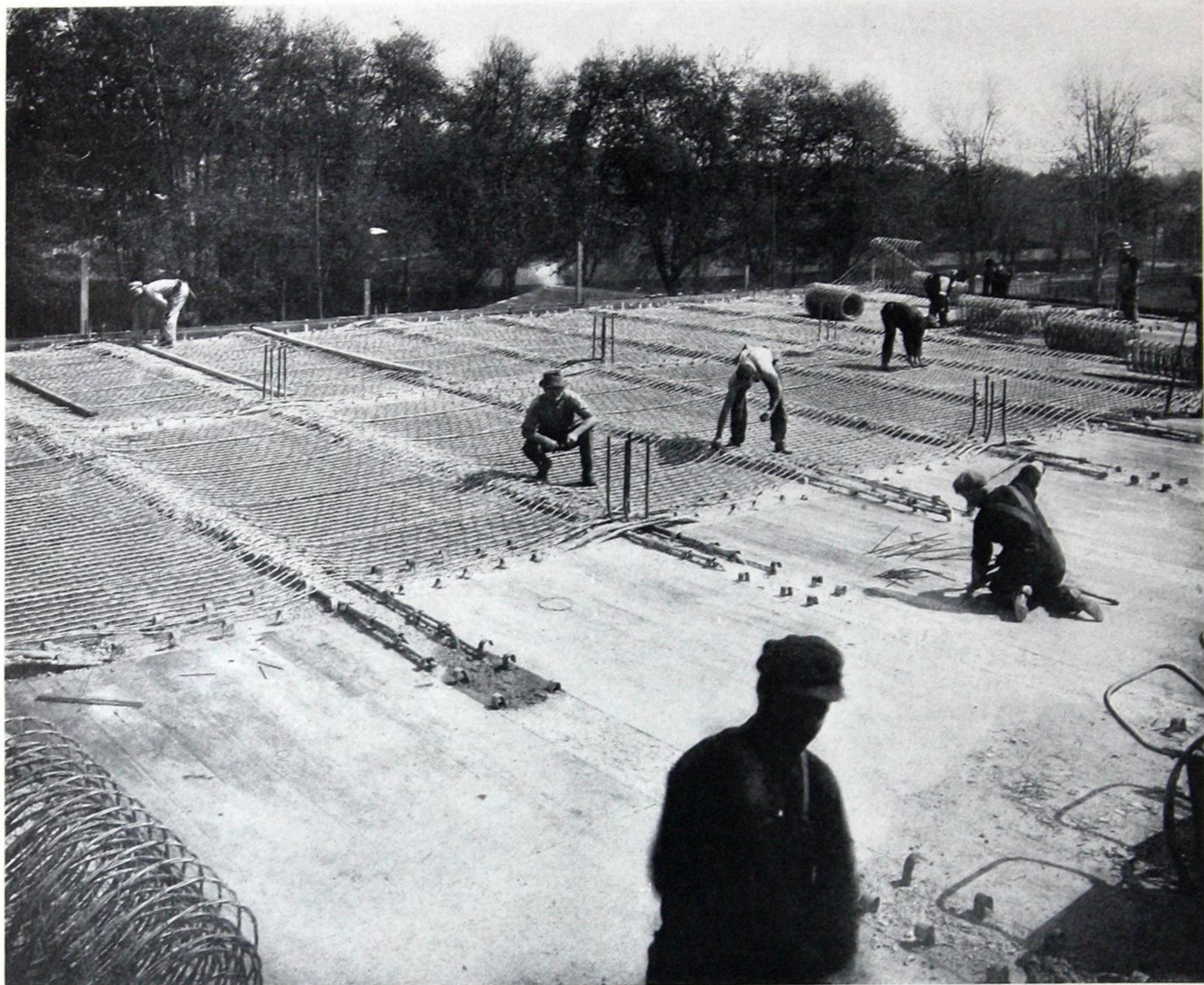
Episcopal Eye, Ear and Throat Hospital, Washington, D. C.

HILL & KENDALL, *Architects*
Washington, D. C.

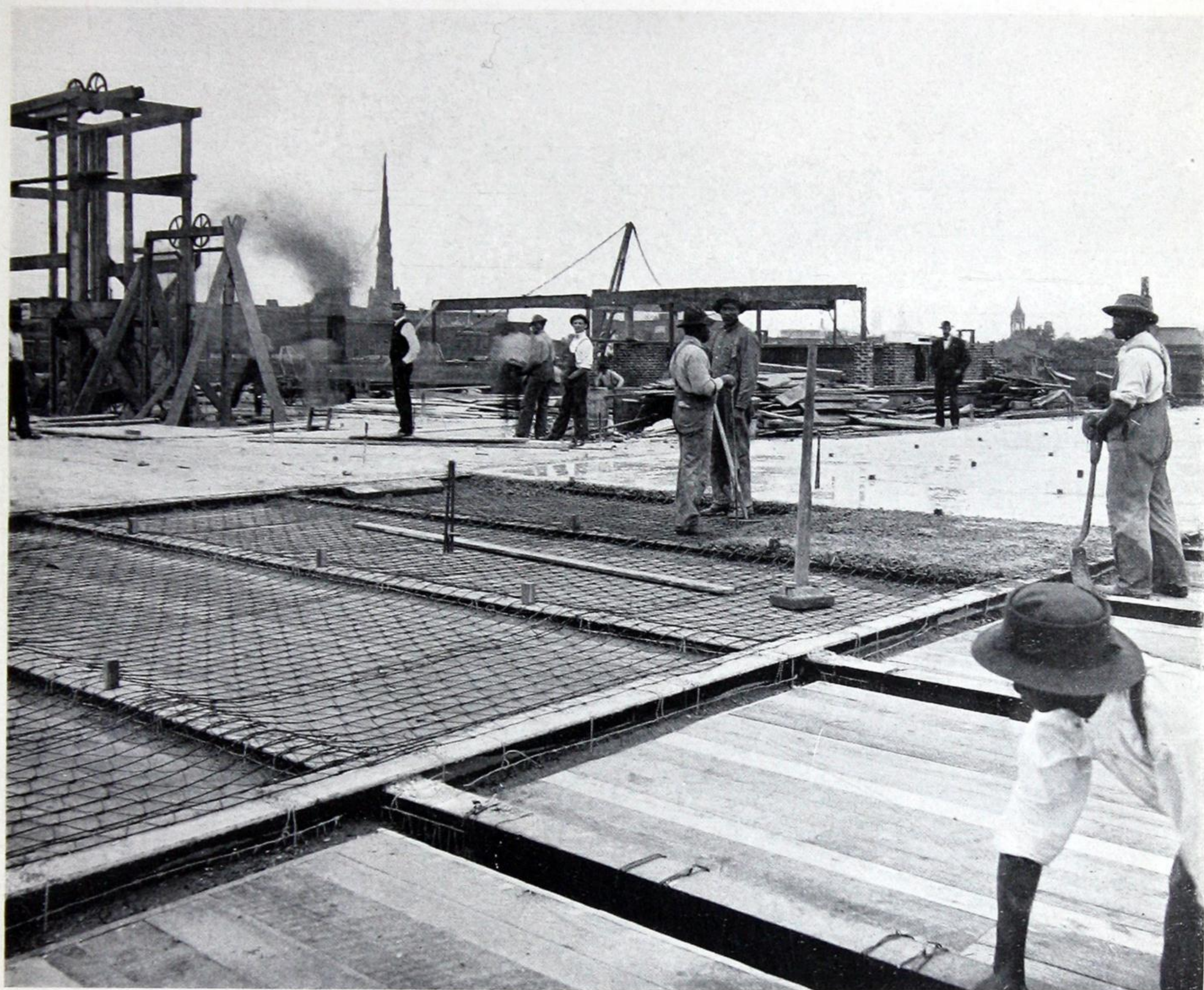
JOHN MACGREGOR, *General Contractor*
Washington, D. C.

NATIONAL FIREPROOFING CO., Washington, D. C., *Fireproofers*

Triangle Mesh Reinforcement, Style No. 26, used

**Bayonne, N. J.**PROF. J. C. OSTRUP, Stevens Institute, *Engineer*TEXAS COMPANY, *Contractors*

29,690 square feet Triangle Mesh Reinforcement used



Market and Armory for Richmond Blues

J. WILSON & SON, *Contractors*

Sold by R. P. & S. I. Co., Richmond

8-foot span, 5-inch slab, Style 26, used



957. H. & M.
Car repair shops
Reinforced concrete roof
Look'g N 21 Oct. '10 C.F.F.

Car Repair Shops, Jersey City, N. J.

J. V. DAVIES, *Engineer*

HUDSON & MANHATTAN R. R. Co., *Contractors*

Chief Eng'r Hudson & Manhattan R.R. Co.

88,983 square feet Triangle Mesh Reinforcement used



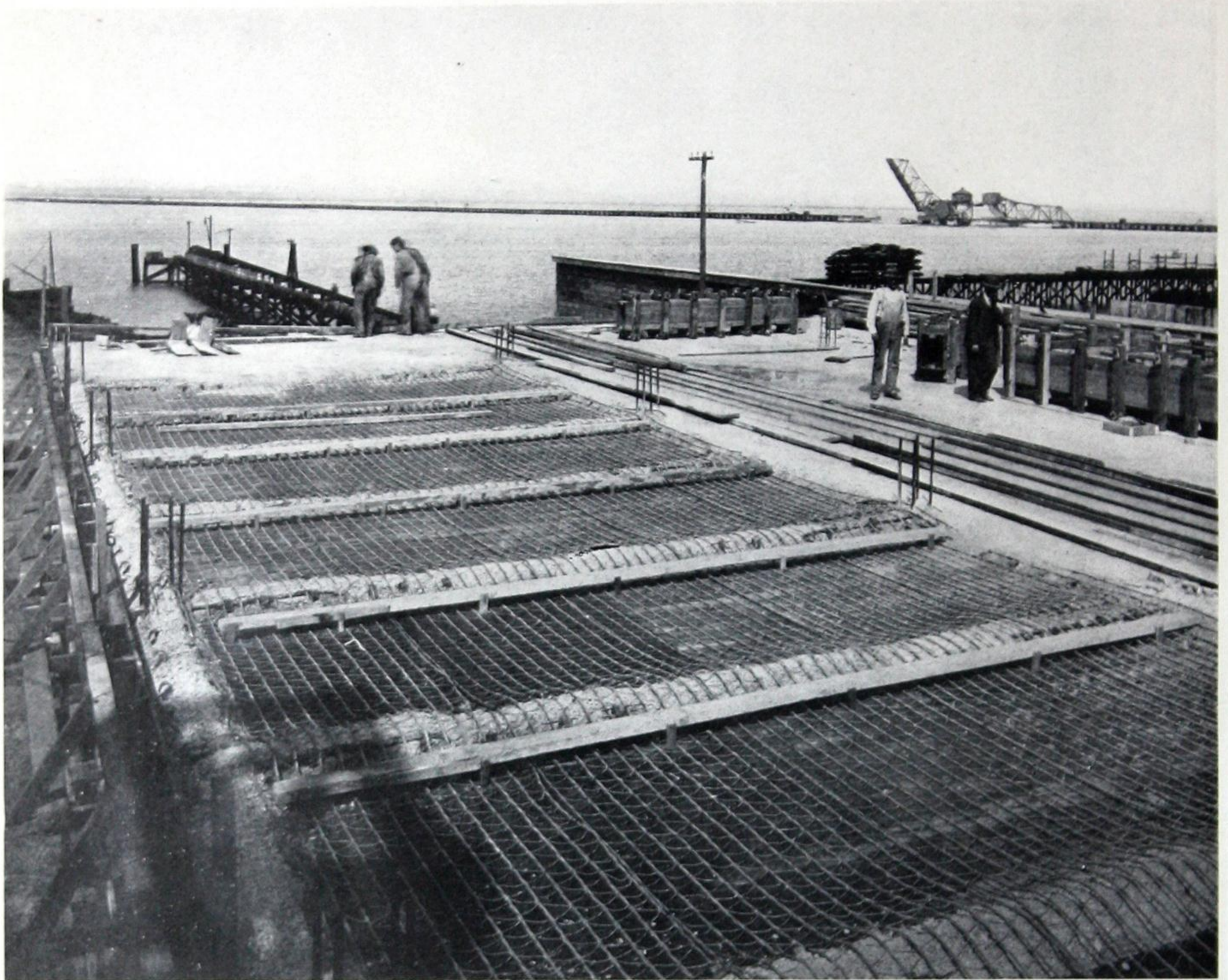
143-5 West 20th Street

SAMUEL SASS, *Architect*

106 7th AVENUE CO., *Contractor*

PIETROWSKI & KONOP, *Fireproofers*

43,575 square feet Triangle Mesh Reinforcement used

**Bayonne, N. J.**PROF. J. C. OSTRUP, Stevens Institute, *Engineer*Texas Company, *Contractors*

29,690 square feet Triangle Mesh Reinforcement used



39 West 19th Street

MAYNICKE & FRANKE, *Architects*

CHARLES A. COWEN & CO., *Contractors*

STANLEY GOLLIEK COMPANY, *Fireproofers*

110,000 square feet Triangle Mesh Reinforcement used



245-253 West 19th Street

H. DAVIDSON, *Architect*

C. O. JOHNSON, *Contractor*

PIETROWSKI & KONOP, *Fireproofers*

71,100 square feet Triangle Mesh Reinforcement used



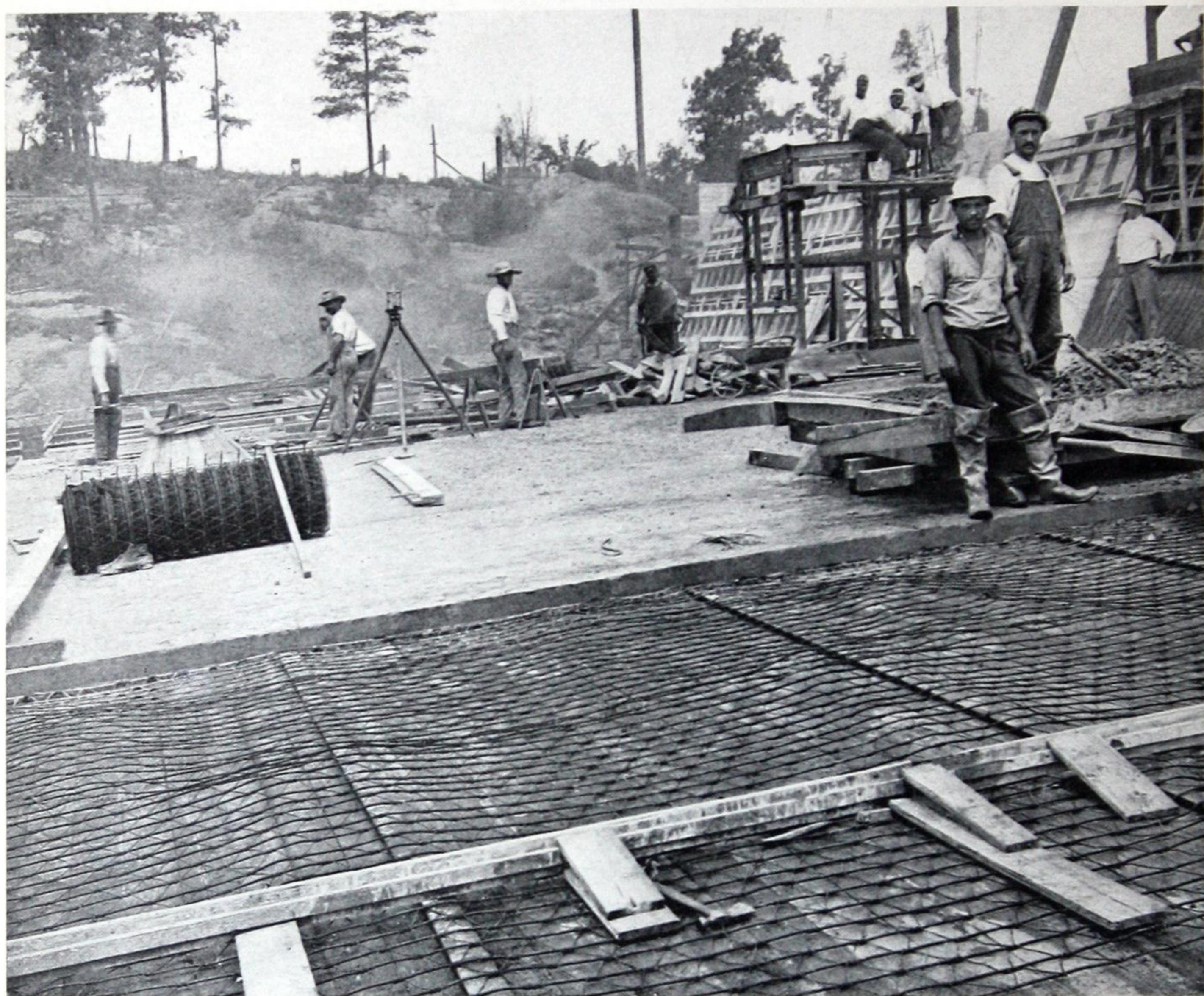
New Station of the Pennsylvania Railroad Company, Baltimore, Md.

KENNETH M. MURCHISON, *Architect*

J. HENRY MILLER, *Contractor*

NATIONAL FIREPROOFING COMPANY, Reinforced Concrete Work

60,900 square feet Triangle Mesh Reinforcement used



Power Plant for Central Georgia Power Company, Jackson, Ga.

J. G. WHITE & Co., *Engineers and Contractors*

Triangle Mesh Reinforcement, style 23, used



Pier 14, Port Richmond, Pa.

W. HUNTER, *Engineer*

Chief Engineer Philadelphia & Reading Railway Co.

O. H. HAGERMAN, *Contractor*

Philadelphia & Reading Railway Co.

26,250 square feet, styles 31 and 38, Triangle Mesh Reinforcement used



28-30 West 25th Street

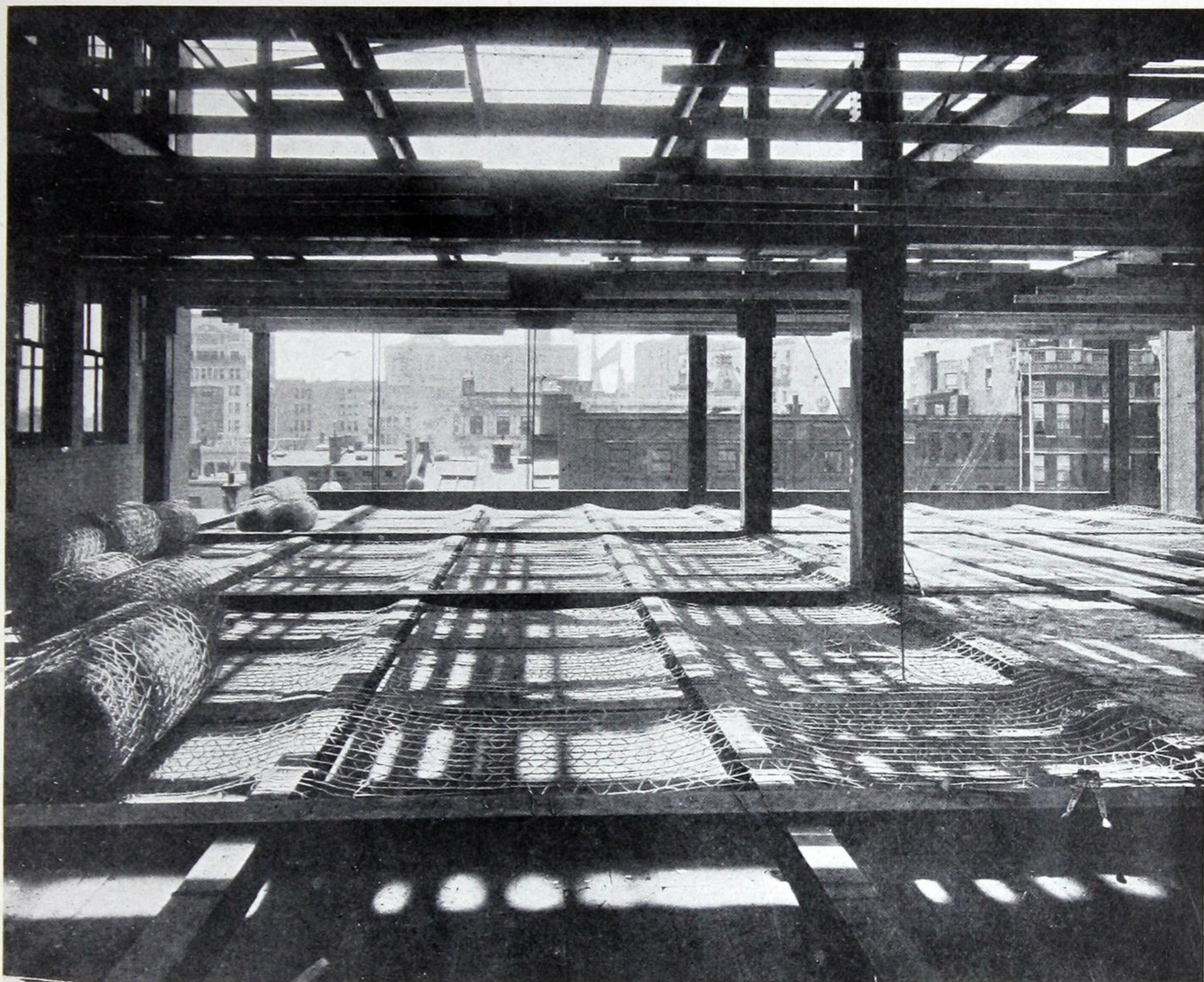
MAXIMILIAN ZIPKES, *Architect*

A. & S. CONSTRUCTION CO., *Contractors*

INTERNATIONAL FIREPROOFING COMPANY, *Fireproofers*

50,000 square feet Triangle Mesh Reinforcement used

System C



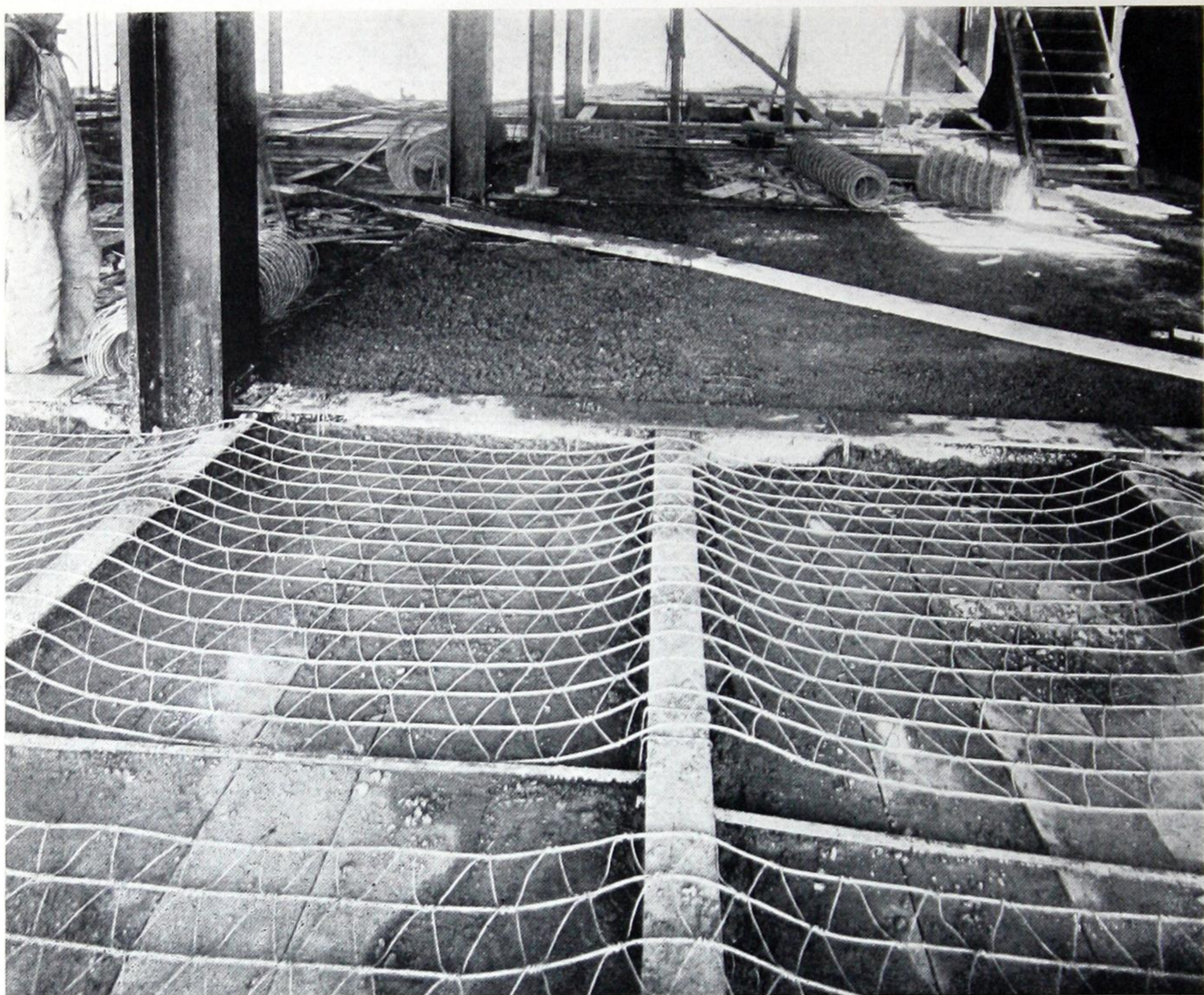
Loft Building, 114-116 East 16th Street, New York City

SQUIRES & WYNKOOP, *Architects*

BLISS & GRIFFITHS, *Contractors*

6-FOOT SPAN, 4-INCH SLAB CINDER CONCRETE

60,000 square feet Triangle Mesh, Style 26, used



7th Avenue and 24th Street

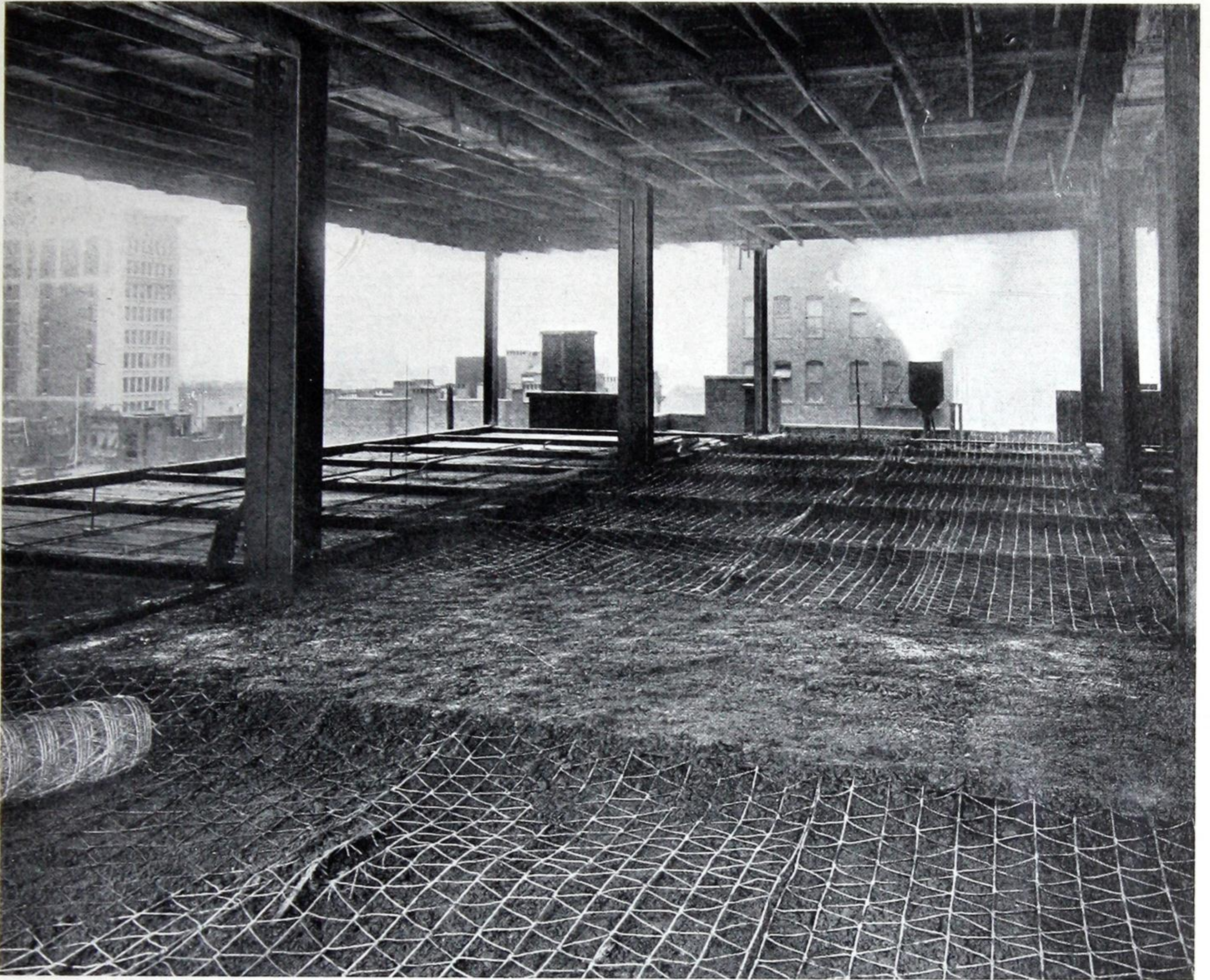
SQUIRES & WYNKOOP, *Architects*

BLISS & GRIFFITHS Co., *Contractors*

BLISS & GRIFFITHS Co., *Fireproofers*

100,000 square feet Triangle Mesh Reinforcement used

System C



144-52 West 27th Street

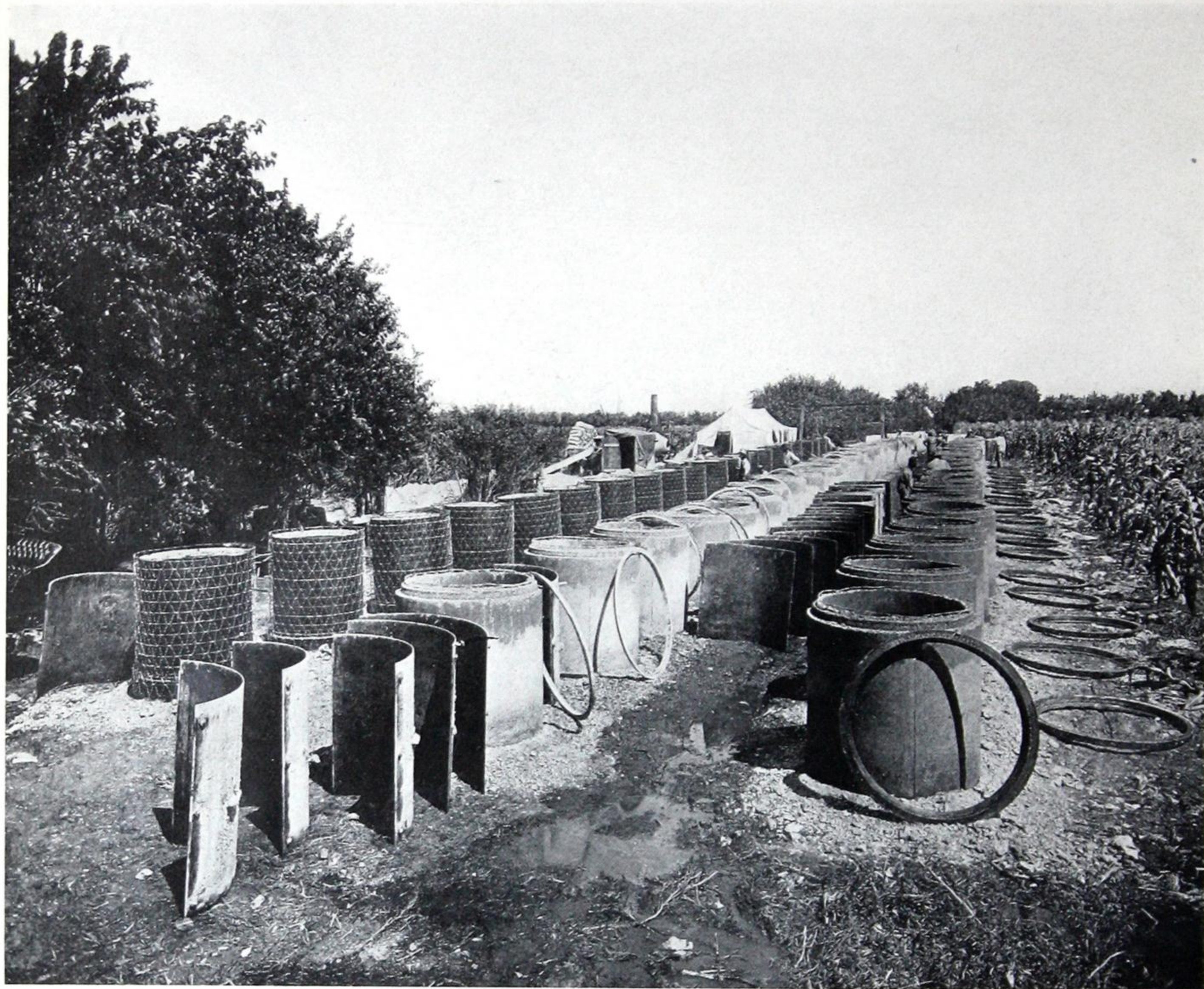
BUCHMAN & FOX, *Architects*

J. A. ZIMMERMAN, *Contractor*

PIETROWSKI & KONOP, *Fireproofers*

72,260 square feet Triangle Mesh Reinforcement used

System B



College Hill Sewer, Wichita, Kansas

BURT C. WELLS, Wichita, *Engineer*

JOHN STRIFFLER, *Contractor*

Lock Joint Pipe used

Showing the ideal material for reinforcing sewer pipe

“Triangle Mesh is cheaper than any other fabricated reinforcement, and we invite comparisons as to strength.”

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